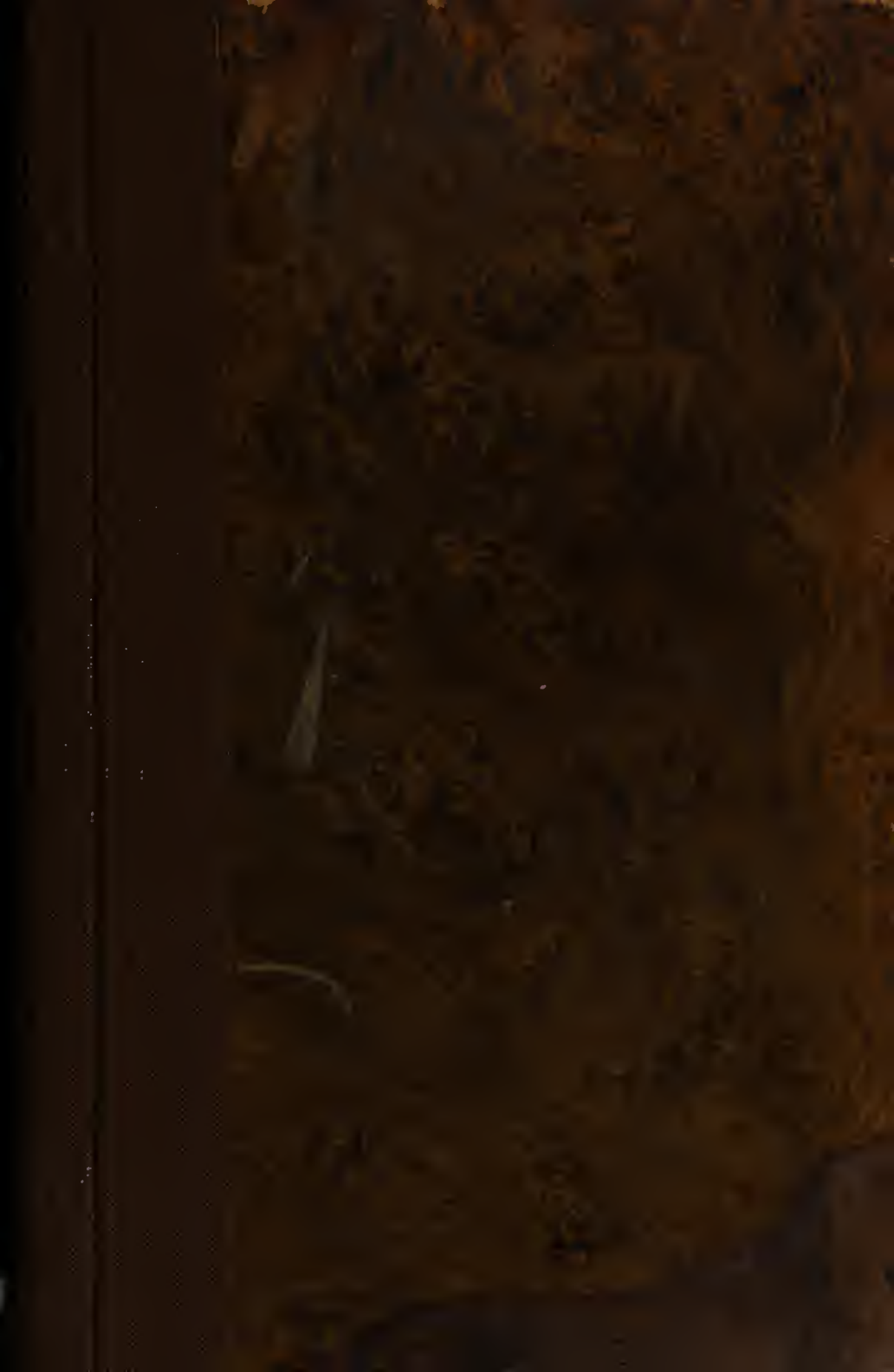

PRINCIPLES

OF

MIDWIFERY;

INCLUDING THE

DISEASES OF WOMEN AND CHILDREN.

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&c. &c.

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BOOK IV.

CHAP. I.

Of the Management of Children.

§ 1. OF THE SEPARATION OF THE CHILD AND TREATMENT OF STILL-BORN CHILDREN.

When a child is born, the first thing to be done is to ascertain if it breathe or be alive. If it cry or breathe vigorously, then it may be safely separated from the mother.* This is done, by tying the navel-string about half an inch from the navel;(a) another

* Dr. Denman, from observing that some children, after they had begun to breathe, had respiration checked, and died after the cord was tied, advises, that the ligature should never be applied till the pulsation cease. But when the child is vigorous and cries lustily, there is no occasion for delaying so long; nor have I ever known any bad effect result from this practice. It has been supposed, that as long as pulsation continued, the function of respiration was imperfect; but it is not so: the pulsation depends more on the continuance of the vitality or action of the placenta, than on the state of the lungs.

(a) This is rather too near the navel, for in case of the ligature cutting through the cord, and hemorrhage consequently taking place, which has sometimes been known to occur, there will scarcely be room left to apply another ligature between the former one, and the abdomen of the child. It is best therefore to apply the ligature, in a general way, at about thee fingers breadth from the navel: this leaves sufficient space for the application of another ligature if necessary.

ligature is applied two inches nearer the placenta, and the cord is divided between these with a pair of scissors. In some countries, the division is made with a sharp flint; in others, by means of fire. The necessity of applying a ligature has been denied by different practitioners; but it has sometimes been found, that when the ligature had become slack, a considerable quantity of blood was lost, and even fatal hemorrhage has taken place.

When a child does not breathe soon after it is born, it is not always easy to say whether it is alive, for we have, at this time, no criterion of death except putrefaction; and, therefore, it behooves us always, unless this mark be present, to use means for preserving the child, by which some have been saved, after being laid past as dead. Children may be born apparently dead, in consequence of the head having remained long in the pelvis, or having been squeezed in a deformed pelvis; or owing to the cord having been compressed, either during the process of turning and delivering a child, or from its having descended before the presenting part of the child, or being so situated during labour, as to be compressed by the uterus, especially during tedious labour. Some children die, owing to the head being born, covered with the membranes, some time before the body. This is the consequence of inattention, for, if the membranes be removed from the face, there is no risk of the child. In whatever mode children are still-born, the effect is referable, either to compression on the cord, first suspending and then destroying animation; or to pressure on the brain; or to a state of insensibility and feebleness, preventing the action of respiration from taking place after birth.

In determining on our treatment of still-born children, our first object ought to be, to ascertain if the circulation be still going on in the cord.

If the pulsation have stopped, no good can accrue from allowing the child to remain connected to the mother. The cord is directly to be divided, and means used, as shall immediately be mentioned, for the production of respiration.

If pulsation continue, the child is not in danger from want of respiration, for the fœtal mode of living is continuing. The cause of stillness, then, is most likely a kind of syncope, or torpor.

which prevents the action of respiration from being established; or it may be from compressed brain. In both cases, the skin is purple, from the blood not having been arterialised, and we have no mark of distinction till respiration begin. It is very common, in the first case, for the child to be still for a minute or more; then it makes a slight sob, and breathes low, with a sound of fluid in the throat; and then, of a sudden, respiration becomes perfect. In the second case, respiration, after it begins, continues longer oppressed, and may perhaps stop, the child dying in a short time.

When the cord pulsates at the time of birth, we are never to be rash in dividing it. It is of importance to keep up the fœtal circulation, till the new mode of acting can be established, and we ought not completely to divide the cord in such cases, till pulsation stop; because, if respiration should flag, we have the placenta as an auxiliary, if the connexion still exist, and the pulmonary action being suspended, the fœtal mode will continue, and support life till respiration become vigorous; for the two modes of changing the blood are not incompatible. Pulsation will no doubt at length stop, either from the heart of the child stopping, or the placenta being detached from the uterus, and its function being lost; but as long as pulsation continues, and the child does not breathe perfectly and regularly, no ligature should be applied. If, however, respiration do not begin, we are to open with a lancet or scissors one of the umbilical arteries, from which blood spouts in a small stream; and, in a short time thereafter, breathing commences. If it should not, some method must be adopted for exciting respiration, such as wrapping the child in warm flannel whilst it is still in bed; friction, especially over the thorax, with the hand, or strong spirits; applying spirits to the nostrils with a feather; or giving a gentle concussion to the body, as for instance, by slapping the back. But the most effectual remedy is inflating the lungs, by blowing either through the barrel of a quill, or applying the mouth directly to the child's mouth, at the same time that the nostrils are held, and the cartilages of the trachea pressed gently back to obstruct the œsophagus. The attempt at inflation is to be alternated with pressure on the thorax, to force the air out again. If, by this time, the pulsation have stopped in the cord, and the child do not recover, the

cord is to be divided, for connexion with the placenta is useless after the circulation stops. The cord is not to be tied, but only a loose ligature put round it; then it is to be divided, and the child removed to the fire, or put in warm water, and the artificial respiration sedulously continued. An injection is also to be administered, and if electricity could be employed, there is ground for thinking that it would be beneficial. Should the child, by these means, or after a longer time, begin to breathe, a little blood will most probably issue from the cord, and the quantity will increase. If this seem to assist the breathing, and make the child more active, it is to be permitted to proceed, to the extent of two or three tea spoonfuls; but if it do not manifestly produce a good effect soon, it is to be stopped with a ligature, that it may not throw the child back into a state of inaction. Even when it is of service, it must be kept within bounds, otherwise dangerous debility will be the consequence.* It will be chiefly useful when the breathing does commence, but is slow and oppressed, with stupor, indicating affection of the brain.

If the shape of the head be much altered, it has been proposed, whilst other means are employing, to attempt slowly and gently to press it into a more natural shape, but of the good effect of this I cannot speak from my own experience. In footling cases, it has been supposed, that extention of the spine was a cause of death, but this, I apprehend, is seldom the case.

It often is desirable to know, whether a child has been born alive, and destroyed afterwards; but the signs are not without ambiguity. When, therefore, the life of the mother is at stake, we must be very circumspect in forming our opinion. If the lungs be solid and sink in water, the child certainly has not breathed; and although respiration may, from the first, be prevented by the midwife, it cannot by the mother. If the head be much mis-shapen, there is additional ground for believing the child to have been still-born, and if clothes have been made for the infant, it is to be presumed, that the mother intended to have preserved it. When, on the other hand, the child has a healthy look, and has been recently

* It is occasionally of service, in weakly performed respiration, to give some gentle cordials or stimulants.

born, the lungs swim in water, and their air-cells universally contain some air, giving a frothy appearance to the mucus squeezed out of them, there is no doubt that the child has breathed. But we cannot from these circumstances say, that it has been intentionally deprived of life. Some corroborating facts must be necessary to fix this point, such as the birth having been concealed, and no preparation made for preserving the infant; the cord being untied, by which it has been allowed to bleed to death; or its being cut longer or shorter than would have been done by a midwife, marks of violence on the child, with the total want of all exculpatory evidence.

Physicians are much divided in opinion as to the importance to be attached to the circumstance of the lungs, with the heart attached, swimming or sinking in cold water.—Dr. Hunter, amongst other objections, states that the child may, when the head alone has been born, breathe, but may die before the body be delivered. M. Marc, on the other hand, contends that the thorax being compressed within the pelvis cannot expand, and the air can only enter the trachea without fully inflating the lungs. In this, I think him wrong. Again it has been stated, that although the child was born dead, yet artificial attempts having been made to inflate the lungs, they will swim, even if the child has never breathed. But, in reply to this, it is with great justice urged, that although air may be forced into the lungs, yet it is more partially than in respiration, and the blood vessels will be found empty, or with very little blood, compared to the rest of the sanguiferous system. Putrefaction, it is also said, will make the lungs swim, although the child has never breathed. But Camper, Marc, and other excellent observers, agree that the lungs putrefy later in the still-born child than most other parts of the body, and maintain that this process does not, even in summer, take place in less than six days; and in winter, in less than as many weeks. On the whole, I am inclined to place very considerable reliance on this test, and am happy to find that my opinion is confirmed by that of the latest writer on medical jurisprudence, M. Foderé, who observes, "La supernatation du cœur avec les poumons est une preuve que la respiration a eté tres prononcée."

Ploucquet, from considering that the lungs in the fœtus contain much less blood than after respiration, concludes, that it will be possible to determine whether the child have respired, by comparing the weight of the lungs with that of the rest of the body, by means of an accurate balance. The blood flowing into the lungs, by respiration, doubles their former weight. Thus, before respiration, the weight of the lungs to that of the body is found to be as one to seventy, whilst after respiration it is as two to seventy. Others, as Haartmann, give a different proportion, making it as one to fifty-nine before, and one to forty-eight after respiration. Lecieux, again, states from a multitude of experiments, that there is no constant relation. The lungs of a full grown fœtus, before respiration, are found to weigh nearly eight hundred grains. The absolute, as well as the relative weight of the lungs may, with propriety, be attended to. By calling in the aid of all these tests, we can seldom be at a loss to decide, and our opinion will be confirmed, if we observe signs of injury.*

§ 2. OF CLEANLINESS, DRESS, AND TEMPERATURE.

After the child is separated from the placenta, it is to be wrapped up in a piece of soft flannel called a receiver, and given to the nurse. Next, the soft white substance, which generally covers the skin, is to be gently and delicately removed by ablution with tepid water, and the use of a sponge, and sometimes of a little soap. It is not necessary to remove every part of this, nor make such attempts as will fret the skin ; but in every instance, and especially if there be reason to suspect that the mother has had gonorrhœa or chancre, the surface should be washed. It is also customary, with many nurses, to bathe the body, or at least the head, with spirits, a practice which can serve no useful purpose, but may be attended with mischief. The child being dried, it is usual to wrap a bit of soft rag round the remains of the naval string, and retain this by means of a bandage brought round the belly. It is alleg-

* There are some very good papers on infanticide by Mr. Hutcheson, in the Med. and Phys. Journ. No. 254. et seq.

The reader is also referred to an Inaugural Desertation on Infanticide, by Dr. John Beck of New York, published in 1817.

ed, that this is necessary to prevent umbilical hernia; but hernia does not take place because the child is not bandaged, but because the umbilicus is unusually wide; and in those countries where no compress is used, hernia is not a frequent complaint. A tight bandage produces pain, difficulty of breathing, and other deleterious effects. The only purpose to be derived from a bandage, is to retain the rag, which is for the sake of cleanliness, applied round the cord.

It was at one time the practice to wrap the child very tightly round the whole body, and to stretch both the arms and legs, whilst the head was secured by tapes, passing from the cap to the body. A more easy method is now adopted, and it seems to be agreed upon, that the more simple and loose the dress is, the more comfortable will the child be. Nurses are peculiarly afraid of the head being cold, and therefore are apt to keep it too warm. In summer one cotton cap, I believe, is sufficient to preserve the heat, but in winter an under cap may be added, but neither of these ought to be secured by pins. Soft tapes are preferable, for this and every other part of a child's dress. The rest of the clothing consists of a short shift and a wrapper of fine flannel, which is better for a week or two than the separate pieces of dress employed by many, and which add to the time and trouble of shifting the child. All children cry when shifted and dressed, therefore the shorter and simpler that the process can be made, the better. Last of all, a cloth is to be applied, to receive the fæces or urine, and this is to be removed the moment it is soiled. By attention, a child may very early be taught to give indication when he wishes to void urine or fæces, and can then be held over a pot or bason. It is proper to encourage the child to use these at regular intervals. Children should have their bottom and thighs washed and wiped dry, always after soiling themselves. The whole body ought likewise to be regularly washed, morning and evening, with a sponge and water, at first rather tepid, but soon brought to be cold, at least of the temperature that cold water has in summer. But although this is a general practice, yet some children do not agree with it, being languid, cold, and pale, after being washed, and these ought to have the water warmed a little. Plunging the child into cold

water is, perhaps, in this country, for some weeks, rather too violent a shock, but about the third month, it will be proper to do so daily.

The temperature in which children are kept, should be such as neither to increase nor diminish the natural heat of the surface. The child in utero is placed in a temperature of about 96 or 98 degrees; but its power in generating heat is probably much less than after birth. The heat of the room, and the quantity of bed-clothes, should be nearly such as would be agreeable to a healthy adult. Depressing heat is to be avoided on the one hand, and exposure to cold on the other. The apartment should be well ventilated, but the infant ought not to be exposed to the open air, for nearly a month in winter, as it is apt to produce convulsions, or catarrh, with fever, or bowel complaints.

§ 3. OF DIET.

It is customary to give some food before the child be applied to the breast, and very frequently medicine also, such as salt, magnesia, or manna, to purge off the meconium. The absolute necessity of either of these practices may perhaps be questioned, especially if the mother be able to suckle at the usual time. A little milk and water is at all events sufficient: and with respect to laxatives, I believe that they are seldom necessary. If, however, the meconium do not come freely away, and the child have no stool in twelve or sixteen hours, or seems to be oppressed, or troubled with pains, a little manna may be given with much advantange;*(b)* but generally the milk which is first secreted, called colostrum, is sufficiently powerful. When the bowels begin to act, and the bile is plentifully secreted, it is usual for the child, in consequence of absoption of bile, or perhaps of meconium, to have a yellow tinge on the skin which is called the gum. This is sometimes attended with a drowsy state. If it require any medicine at all, it is a gentle laxative.

All children are intended to be brought up on the breast, and

(b) Or what it is much better, a little mild oleum ricini, or even olive oil.

they ought to be applied early, generally, betwixt twelve and twenty-four hours after birth. Some mothers, however, cannot, and others will not, suckle* their children, but employ another nurse,† or bring the child up on the spoon. If the latter mode is to be adopted, it is necessary to determine the proper diet, and the best mode of giving it.

It is evident that the diet which will be most suitable for an infant, is that which most nearly resembles the mother's milk. It is not sufficient that we merely give it milk, it must be milk similar to that of the human female. It is certain, that the lacteal secretion of each species is best fitted for the young of that species; and we know that there is a great diversity both in the flavour and proportion of the component parts of different milk. Yet, in many cases, the milk of one animal will agree with the young of a very different species. Thus a leveret has been suckled by a cat.

* Van Helmont, and after him, Brouzet and others, have advised, that children should not be brought up on the breast, but fed on asses and goat's milk, or a panado made of bread boiled in small beer, and sweetened with honey.

† In choosing a nurse, it is necessary to be satisfied that she enjoys good health, and has an adequate supply of milk. Certain rules have been laid down to enable us to ascertain the quality of the milk by its appearance; but it is sufficient that it be not too thick, and have a good taste. With regard to the quantity, we cannot judge at first, for the milk may be kept up so as to distend the breast, and give it a full appearance. A woman who is above the age of 35 years, or who has small flaccid breasts or excoriated nipples, or who menstruates during lactation, or who is of a passionate disposition, should not be employed as a nurse. The milk, during menstruation, is apt to disagree with the child, and produce vomiting or purging, but this is not uniformly the case. Violent passions of the mind affect the milk still more; it often becomes thin, and yellowish and causes colic or even fits. Those who labour under hereditary disease should, at least for prudential motives, be rejected. The woman's child, if alive, should be inspected to ascertain how it has thriven, and both it and the nipple should be examined, lest the nurse may have syphilis. A woman who has already nursed several months is not to be chosen, as the milk is apt to go away in some time, or become bad. It is farther of great advantage to attend to the moral conduct of the nurse, for those who get drunk, or are dissipated, may do the child much mischief.

With regard to the diet of a nurse, it is improper to pamper her, or make much difference in the quality of the food, from what she has been accustomed to. It is also proper that she be employed in some little duty in the family, otherwise she becomes indolent and overgrown.

Milk consists of cream, curd, and whey; and the whey, the greatest portion of which is water, is the only part that becomes sour. The quantity of cream is greatest in ewe's milk, next in that of woman, the goat, the cow; and then the ass and the mare. The proportion of whey is greater in the milk of mares and women, than of the cow or sheep. With regard to the caseous part, it is greatest in the milk of sheep, the goat, the cow, the ass, the mare, in the order in which they stand; and it is little in that of women. Sugar again is most abundant in the milk of the mare and women, and less so in that of the goat, the sheep, and the cow. Woman's milk contains more cream than cow's milk, yet no butter can be made from it. It contains much whey, and yet it scarcely ever becomes sour by exposure to air, and does not pass either to the vinous or putrefactive fermentations. Acids do not coagulate human milk.

From these remarks it follows, that if a child is not suckled, the best food will be milk, resembling that of women, and the nearest is asses; but as this cannot always be procured, we must change that of cows, so as to diminish the proportion of curd, and increase that of sugar and cream, which is done by adding an equal quantity of new made whey, a sixth part of fresh cream, or less if it be rich, and a little sugar.(c) Some dilute the milk with water gruel. This is to be mixed just as it is required, for, by standing, it acquires bad properties. It is not to be given with the spoon, but the child is to suck it of a proper heat, out of a pot which is made for the purpose, and which has a piece of soft cloth tied over the perforated mouth. This diet may be occasionally alternated with a little weak veal or beef soup. Panado made with crumbs of bread, is not proper; and meat made with unbaked flour is still worse. In the third month, we may, besides the milk-mixture and light soup, give occasionally a little spoon meat, such as panado made with the crust of fine bread, and a lit-

(c) Or a very good substitute may be found in the combination of equal parts of barley-water and fresh cow's milk sweetened with the best refined loaf-sugar. And here we may mention, that brown sugar should never be used in the food of infants, as it readily runs on into fermentation, generating gaseous flatulency, in the primæ viæ and often producing great uneasiness and colicky pains. When the child is habitually costive, the food may be sweetened with manna instead of sugar.

tle salt, which is better than sugar, care being taken to break down the lumps completely. This to be mixed with milk. Sago, salep, calves-feet jelly, &c., are also very proper; and as the child advances in life, eggs, in the form of light custard, &c. are allowable. Some have proposed a panado made with the flour of wheat malt. By attention, a child may be taught to eat at pretty regular hours,* especially after he is a few months old; and great care should be taken, that he do not eat too much at a time. If the child is not suckled, we ascertain that the artificial diet is agreeing with him, if he be lively and easy, and the bowels are correct. But when it does not suit, as is too often the case, he is either dull and heavy, or cries much, and often the bowels are either bound or too loose; and in both states the stools are fœtid, and have a bad appearance. If this condition of the bowels cannot be corrected hy medicines, the child in all probability will be lost, if a nurse be not procured; convulsions, or diarrhœa, will carry him off.

When a child is brought up on the breast, there is no occasion, if the supply be abundant, to give him any other nourishment for three or four months. After this time, however, it will be proper to give a little food of the kinds mentioned above, and the proportion ought be gradually increased, as we proceed to the time of weaning, by which the organs of digestion are enabled to accommodate themselves better to the change of diet which then takes place. With regard to the age at which a child should be weaned, it is not possible to give any absolute rule. In general, the longer it is delayed, if we do not go beyond a year, the better does the child thrive, provided the milk be good. When a child is nursed beyond a year, and receives little other food, or when the milk becomes earlier altered, he is apt to be injured. At all times delicate, should be nursed longer than robust, children; and, if possible, weaning should not be made to interfere with the development of teeth, nor be attempted in the prospect of, or soon after the cure of, any debilitating disease. If the mother's health per-

* It is also of advantage, that when a child is brought up on the breast, he be not applied at all hours indiscriminately; and no child should be allowed to suck whilst the nurse is asleep, as he is apt to surfeit himself.

mit, children may be suckled from nine to twelve months. After the child is weaned, the diet must be carefully attended to, and should consist of light soup, eggs, bread, and milk. In Ireland, potatoes form a prineipal part of the diet. In Seotland, oat-meal porridge is a eommon diet, and with many agrees very well; but it is, notwithstanding, apt to be heavy and binding, unless it have an admixture of barley-meal, which eorreets it. As soon as teeth sufficient to masticate appear, a little animal food may be given onee a-day.

The dress of ehildren, as they grow up, must be regulated, in some respect, by the custom of the eountry, and the season of the year. It ought always to be easy and warm. Mr. Locke advises, that a ehild should wear thin shoes, and get wet feet, that he may beeome hardy; but experienee proves, that the children of the poor, who are exposed to many privations and hardships, are not improved thereby. Cleanliness is essential to health, and the whole surface should be washed once a-day at least, and the hair daily eombed and brushed, whieh may prevent seald-head. The exercise should be proportioned to the age. Infants sleep mueh, and ean take no exercise, if we exeept that given by their nurses; but when they are about two months old, they may be plaeed on the carpet, and eneouraged to creep. When they are able to walk, they should be allowed to run about freely; and it will be of great advantage, where eircumstances permit, that the first years of life be spent in the eountry.

CHAP. II.

Of Congenite and Surgical Diseases.

§ 1. HARE-LIP.

When a child is born, it is necessary to ascertain that it have no congenite imperfection, or have met with no accident during birth.

I can here only make a few short remarks on some of the most frequent and important imperfections. The first I shall notice, is the hare-lip, which may exist in different degrees, and be accompanied with a vacancy in the palate. Sometimes an operation has been performed soon after birth, but it often fails, and occasionally the child dies. It is better to delay it for ten or twelve months, or even longer. In the mean time, the child must be brought up on the spoon, unless the defect be so trifling, as to permit him to suck a large nipple.

§ 2. IMPERFORATED ANUS, URETHRA, &c.

Imperforated anus may exist in different degrees. There may be an appearance of anus, but an obliteration a little higher up. This is discovered, by introducing a bit of oiled paper rolled up, which ought always to be done when the child is long of voiding the meconium. If the paper be soiled with fæces, we may be sure that the rectum is pervious. A blunt probe, cautiously introduced, will also ascertain the state of the gut. Sometimes the anus is covered with a thin membrane only. In other cases, a great part of the rectum is wanting, or it terminates in the bladder of the male, or vagina of the female, which last is not a fatal deviation. It is proper always to make an incision at the anus, or at the spot where it ought to open, if there be no mark of it; and this is to be carried about half an inch or an inch deep. If no intestine be found, a trocar or lancet may be passed a little deeper in the proper course of the rectum. If, by any of these means, the bowel be opened, a tent should be employed to keep the aperture from closing.* But if it be not thus found, we are not to prosecute the dissection farther, but must form an artificial anus, by making an incision at the lower part of the left iliac region, sufficiently large to

* In a case operated on by M. Cervenon, where the incision was obliged to be carried an inch high, it was necessary to use a bougie for a year. The child was enabled to retain the fæces, but the anus appeared as if it were sunk an inch deeper than usual. Recueil Period. Tom. I. p. 36.

allow the colon to be brought out, opened, and the extremity retained to the wound.*

Imperforated urethra is rare, for generally the canal opens in supposed cases of imperforation, about midway, between the scrotum and glans penis. There is seldom occasion to do any thing instantly, but, in due time, an operation may be performed to carry on the urethra to the point. Retention of urine, not dependent on malformation, is readily removed, by introducing a probe into the bladder. Deviations in the structure of the vagina and hymen have already been considered.

Imperforated meatus auditorius is very rare, and can seldom be remedied, except there be merely a membrane stretched across the canal. Adhesion of the eye-lid is often complicated with a defect in the eye-ball itself; but when this is not the case, an operation will be advisable.

§ 3. UMBILICAL HERNIA.

Sometimes the umbilicus is peculiarly large, and hernia takes place soon after birth, but still more frequently betwixt the second and fourth month. Two modes of treatment may be adopted. The first is compression, carefully maintained, which should be always tried. This, in some instances, produces a radical cure; the umbilical opening contracting, which it never does in adults. The second mode is reducing the intestine, and tying the sac with a single or double ligature. It has also been proposed, to open the sac, and close the umbilical aperture by pins or stitches; but this has no advantage over the double ligature. Sometimes, a very great portion of the intestines is found protruded at birth, into the sheath of the cord. This may be complicated with an imperfect or transparent state of part of the abdominal parietes; but whether it be or not, the child generally dies within forty-eight hours. The abdomen is too small to receive back the intestine quickly; and even although it could be reduced, the child, if we may judge from ex-

*Vide Observations on this subject, by Dumas and Allan, in the Recueil Period. Tom. III. p. 46. and 123. and a case in point by Duret, in Tom. IV. p. 45.

perience, has no great probability of existing. In one case, Mr. Hey found the tumour burst during labour.

Other species of hernia, are to be treated on general principles. The bowels are to be kept open, and violent exertion avoided. The propriety of endeavouring to retain the bowel with a bandage, must depend on our being able to do it effectually; for if the bowel protrude, it is pinched by the pad. This produces pain and local inflammation, and not unfrequently convulsions.

§ 4. SPINA BIFIDA.

Spina bifida is an imperfection of the vertebral canal and the spinal marrow. The bone is deficient generally about the lumbar vertebræ: a tumour is formed externally, which contains a fluid, and the skin is usually livid. The marrow stops at the commencement of the tumour, but sometimes begins again below it; or small nervous twigs arise from the inner surface of the sac, and pass out to form the nerves of the inferior part of the body. This is a fatal disease, and death is generally preceded by inflammation or gangrene of the tumour. In some instances, the sac is open at the time of birth. The tumour may either be or not be connected with hydrocephalus internus. If the head be enlarged, there can be no doubt of the existence of the latter disease, and nothing ought to be done to the tumour of the spine. If the urine or fæces be expelled involuntarily, or the inferior extremities be paralytic, or the tumour have burst, or sloughed, no attempt need be made for relief. Where these unfavourable circumstances are absent, then two modes of treatment offer for consideration, palliative and radical. The first consists in treating the tumour as a hernia, that is, gradually getting the contents to retire within the vertebral sheath, if they are not so great as to produce compression of the brain, and then a compress or truss is applied. Or, if the tumour be larger than to permit of this, then a hollow compress, or hollow piece of plaster of Paris, may be applied, at least in the first instance. This plan is only palliative, and never cures the complaint, but it prevents increase. The second exposes the patient to great danger from constitutional irritation, but if it suc-

ceed, the cure is radical. It consists in repeatedly puncturing the tumour with a needle, and drawing off the water. At last, adhesion of the sides of the sac is produced, and the opening from the spine is closed, the skin hanging shrivelled over it, or becoming puckered at the part.*(d)*

§ 5. MARKS.

Marks and blemishes are very frequent, and may be placed on any part of the body. They are of two kinds: First, simple discoloured patches, generally of a red colour, and not elevated.

(d) The very ingenious Astley Cooper, in some observations published in the Medico-Chirurgical Transactions, vol. ii. has recommended two modes of treating spina bifida, which in his hands have been attended with very encouraging success; one mode may be considered as *palliative* only, the other as *radical*.

The first consists in treating the case as a hernia, and applying a truss to prevent its descent. This truss, in the first instance, may consist of a piece of plaster of Paris, somewhat hollowed, and that hollow partly filled with a piece of lint, which is to be placed upon the surface of the tumour; a strip of adhesive plaster is then to be applied, to prevent its changing its situation, and a roller is to be carried round the waist, to bind the plaster of Paris firmly upon the back, and to compress the tumour as much as the child will bear; after some months, a truss may be applied, similar in form to that which is sometimes used for umbilical hernia in children, which must be constantly worn.

The second mode of treatment, which is to be considered as *radical*, consists in producing adhesion of the sides of the sac, so as to close the opening from the spine, and stop the disease altogether. This is done by puncturing the tumour with a needle, or any very fine pointed instrument, and thus discharging the fluid contained in it. Pressure by means of a roller, &c. is then to be applied, and the operation of puncturing is to be repeated as often as the fluid re-collects.

The first mode Mr. Cooper observes, is attended with no risk. The truss forms an artificial vertebra, when the natural is defective, a buttres which supports the part, and prevents the increase of the disease; but in this mode of treatment, the truss is required in future life; for if discontinued, the tumour re-appears, and will grow as hernia does, to great magnitude, but with more fatal consequences. On the contrary, the adhesive mode of cure exposes the patient to much constitutional irritation, but leaves him without the apprehension of the future return of the disease. It may also be observed, that this mode does not prevent the subsequent attempt at the palliative treatment, if the radical should not be successful. Nevertheless, it is confessed, that there are many cases of spina bifida, which do not admit of a cure by these, or any other means. See Eclectic Repertory, vol. iii. p. 438, and seq.

These are not dangerous, but rarely admit of cure. Second, elevated discoloured marks, which are of a purple hue and very vascular. These are apt to increase, and at last bursting, a fatal hemorrhage may take place. They may be seated on the face, or in the lip, eye-lid, &c. or on the spine, resembling spina bifida, but are more solid or spongy, and the bone is not deficient. These ought to be extirpated, as soon as they begin in the smallest degree to increase. Small marks have occasionally been removed by raising the skin with a blister, and then applying mild escharotics, or by means of caustic.*

* These congenite deformities have hitherto been considered as incurable. This is true with regard to many cases; but there are others which may undoubtedly be relieved. They seem to consist, as has been very ingeniously suggested by Mr. J. Bell, in an aneurismal enlargement of the vessels of the part. Adopting this suggestion, the celebrated Mr. Abernethy has deduced a very plausible mode of treating these affections. There can be no doubt, he says, "that the repletion, distension, and consequent enlargement of the dilated vessels, depend upon a kind of inflammatory action of the surrounding arteries; for if that be wanting, the mark ceases to enlarge, and if present, it increases in size in proportion to the degree of inflammatory action." The success of his practice is shown by the following cases.

A child about two months old was brought to St. Bartholomew's Hospital, says Mr. Abernethy, with this unnatural enlargement of vessels, distributed every where, beneath the fore-arm, from the wrist to the elbow; in a short time it had swollen to that degree, that the circumference of the affected fore-arm was twice the size of the other, the vessels being large and contorted.

The skin was of a dusky hue, and had not its natural smoothness of surface. The heat of this fore-arm was much greater than that of the corresponding sound one. Pressure forced the blood out of the vessels, and temporarily diminished the bulk of the limb, and made it of a paler colour. The effect of the following treatment, which it appeared to Mr. Abernethy, right to institute, was tried. First, he was desirous of ascertaining whether a permanent and equable pressure would not prevent the distention, and consequent enlargement of the turgid vessels; secondly, whether reducing the temperature of the limb would not diminish the inflammatory action, upon which their repletion seemed to depend. These two intentions admitted of being readily accomplished. A many-tailed bandage of sticking plaster seemed adequate to effect the first, and wetting the limb with water the latter. These measures were judiciously carried into effect; the pressure was first made slightly, and afterwards more forcibly, as the part seemed to bear it without inconvenience. A roller was applied over the plaster and kept wet, if the limb felt hotter than natural, so as to regulate its temperature. The success of these measures exceeded the most sanguine expectations.

§ 6. SWELLING OF THE SCALP.

Children may, especially after tedious labour, be born with a circumscribed swelling on the head. This seems to contain a fluid, and has so well defined hard edges, that one, who, for the first time saw a case of it, would suppose that the bone was deficient. It requires no particular treatment. By applying cloths dipped in brandy, the effused fluid is soon absorbed.

§ 7. DISTORTION OF THE FEET.

Distortions of the feet are not uncommon. They are called

The size of the limb gradually diminished, and its temperature became natural After six months, the bandages were removed, which it was not necessary to continue any longer. The limb was in some degree wasted from pressure and disease, but it soon gradually re-acquired its natural size. After the bandages had been left off for a month, the skin was pale, and had a slightly shrivelled appearance. The contorted vessels felt like solid chords interposed between it and the fascia of the fore-arm.

A child had this unnatural state of the vessels in the orbit of the eye. They gradually increased in magnitude, and extended themselves into the upper eyelid, so as to keep it permanently closed. The clustered vessels also projected out of the orbit, at the upper part, and made the integuments protrude, forming a tumour as large as a walnut. Of course the removal of this disease did not seem practicable. Pressure to any extent was here evidently impossible ; but the abstraction of heat, and consequent diminution of inflammatory action, might be attempted. Folded linen, wet with rose water, saturated with alum, was bound on to the projecting part, and kept constantly damp. Under this treatment, the disorder as regularly receded as it had before increased. After about three months it had gradually sunk within the orbit, and the child could open its eye. Shortly after all medical treatment was discontinued, and no appearance of this unnatural structure remains.

A third case of a very extensive mark of this description, covering the back and shoulder appears to have gotten well by the same treatment. It appears probable, from the foregoing cases, that if the preternatural distention of the vessels could be prevented, the blood might coagulate in them; and thus this unnatural contexture of vessels, being rendered impervious, might become obliterated.

Vide Abernethy's Surgical Observations on Injuries of the Head, and on Miscellaneous Subjects. [Art. on the treatment of one species of Nævi Materni.] page 140, Dobson's Edition.

vari, when the foot is turned inwards: valgi, when outwards. These, and similar deviations, are to be cured by pressure, applied with proper bandages adapted to the nature of the case. They must operate constantly, but gradually, and ought to be applied as early as possible. It is a bad case, indeed, which cannot thus be cured by a good mechanic.*

§ 8. TONGUE TIED.

When the frenum linguæ is too short, or attached far forward, the child can neither suck well, nor speak distinctly. It is very rare in its occurrence. I have not seen two children where it was really necessary to perform any operation; for in all the rest the child sucked the finger,*(e)* or a good nipple very readily. The operation consists in dividing, to a sufficient extent, the frenum, with a pair of blunt pointed scissors. If the artery be imprudently cut, the hemorrhage is to be checked by compression or cautery.

§ 9. MALFORMED HEART.

Imperfection or malformation of the heart is a very frequent occurrence; or the fœtal structure may continue long after birth. If the imperfection be great, the symptoms come on almost immediately after birth; but if slight, or consisting merely in a continuation of the fœtal structure, they may not come on till the child begin to walk, or get teeth, or even later. The child is dark-coloured, or the skin has a dirty appearance, the nails and lips are livid, the breathing is more or less difficult, and he is subject to attacks of asthma, or a kind of suffocating cough, like that in peripneumonia, or hooping-cough; and whenever this attacks an infant, I augur very ill. I have no remedy to propose. Comparative ease may be obtained, by keeping the child as quiet as possi-

* For the anatomy of the club-foot vide Scarpa.

(e) This is a good test; for, if upon the insertion of the finger into the child's mouth it sucks it readily, division of the frænum cannot be necessary.

ble, avoiding a loaded stomach, or costive state of the bowels. For an account of the different kinds of malformation, I refer to my brother's excellent Work on the Diseases of the Heart.

§ 10. SWELLING OF THE BREASTS, &c.

Children have sometimes a swelling of the breasts after birth. This is chiefly owning to a secretion of a milky fluid, and much injury is often done by attempting to squeeze it out. Gentle friction with warm oil is of service; but if inflammation come on from rude treatment, a tepid poultice must be employed.

Hydrocele generally goes off, by applying compresses dipt in solution of muriate of ammonia. A puncture is rarely necessary. Phymosis requires astringent lotions.

Prolapsus ani is to be cured, by keeping the bowels easy, using the cold bath, and returning the gut whenever it protrudes. The child should also be prevented from remaining long at stool. If the prolapsus prove obstinate, injecting a little decoction of oak bark may be proper.

Serous discharge from the navel sometimes takes place, after the separation of the cord; and, in general, it will be found to arise from a small fungus not larger than a cherry stone. This is removed by a little powdered alum, or, if that fail, by a little red precipitate, or by a ligature.

Excoriation of the naval is different; for there is no fungus, but rather inflammation and superficial ulceration. It is to be removed by opening the bowels, keeping the part very clean, and bathing it occasionally with Port wine; after which it is to be dressed with cerussa ointment. If neglected, or the bowels be not attended to, the inflammation may become erysipelatous, and end in gangrene. If this be threatened, gentle laxatives, a good nurse, and mild dressings, poultices, or spirituous applications, according to their effects, can alone save the child.

Sometimes a day or two after the cord separates, or at the time of separation, hemorrhage takes place from the navel. This may yield very readily to compression, or astringents; but, nevertheless, may also prove obstinate and fatal. The actual cautery has

been proposed, or nitrate of silver, or cutting at the navel and applying a ligature on the end of the vein, which is supposed to bleed oftener than the arteries. I know, from experience, that no compress can at all times be depended on, except the point of the finger, and that cannot well be steadily applied for hours or days in succession; yet, in obstinate cases, I know no safer nor better plan, the assistant being relieved at proper intervals, for some time, both night and day. I give this opinion, from finding other means, apparently more powerful fail. Strong astringents, or escharotics, caustic applied so as to form an eschar, a ligature carried, by means of a needle, round the umbilical aperture, and tied tightly, the twisted suture made by crossing two needles, and working the whole navel over tightly with thread, have all failed, and appeared, by propagating inflammation to the peritoneum, to hasten death.

Discharges of blood, but much more frequently of mucus or muco-purulent matter, from the vagina, occur in infancy, but still oftener in childhood, and sometimes are very protracted; they are not however hazardous. The bowels are to be kept regular, by the administration of rhubarb and magnesia, and sometimes small doses of calomel. Tincture of steel is also useful in childhood. The cold bath should be employed. The discharge is carefully to be removed by frequent ablution; and if these means fail, some mild astringent solution is to be injected frequently into the vagina.

Incontinence of urine, during the night, often depends on a bad habit, and is to be treated accordingly. When it continues long, the cold bath is proper.

Scalds and burns are best cured, by applying instantly cloths wet with strong vinegar. This is the proper practice, whatever part is injured; but when the face or neck are scalded or burned, it is of the utmost importance to prevent a mark, and nothing does so more effectually than the instant application of strong vinegar. This, if the injury be slight, prevents the part from blistering, or only a very slight vesication takes place. After a few hours, the vinegar may be discontinued, and the part dusted frequently with cerussa, or we dress with cerussa ointment, or anoint the spot with

this, and then make it dry with cerussa or chalk. The part is to be washed at least once a day, to remove any irritating matter which might fret it.

If vesications have formed, they are to be opened with a very small puncture, to let out the fluid, and then vinegar is to be applied; or if this give much pain, a thin cloth dipped in oil may be interposed between the tender parts and the vinegar.(f)

In more extensive and severe burns, oil of turpentine alone, or mixed with unguentum resinosum, forms the best dressing for some time, and then the sore is to be covered with powdered chalk, which is to be continued till it heals. It represses fungus, and forms an artificial scab. In all cases pain is to be allayed by opiates, and the bowels are to be kept open.

Ear-ach is a very frequent and painful disease of children. It is discovered, if the child be old enough, by his complaining of his ear; but if he is too young to do this, it may be suspected, by his being seized with a sudden and severe fit of crying as if he had colic, and like it, the pain seems to remit occasionally. He does not, however, spur with his feet, nor is the belly hard, but he is restless with his head, and complains if his ear be touched. In some time he falls asleep, and next day perhaps his cap is stained with matter. Nothing gives so much relief as heat. Warm oil, or a warm poultice is to be early applied, or the outside of the ear is to be rubbed with warm laudanum. If a fœtid discharge succeed this disease, and the child be deaf, the ear is to be daily washed out with milk and water, by means of a syringe. Small blisters may be applied behind the ear, and the constitution is to be invigorated. The bowels in particular are to be kept regular. Many children have occasional discharges of matter from their ears, upon catching cold, without much pain, and at that time they are deaf. But by keeping the ear warm, and by scrupulous attention to cleanliness, the discharge stops, and the hearing returns.

(f) A very mild and useful application in burns, particularly in those of children, is a liniment composed of equal parts of mild olive oil and lime water, well mixed together by agitation; this may be laid on with a feather, and afterwards a piece of fine old linen, dipt in the liniment applied to the part, which is to be constantly kept moist by means of the feather.

§ 11. FŒTID SECRETION FROM THE NOSE.

The mucous secretion of the nostril is sometimes exceedingly fœtid, so that it is disagreeable to come near the child. The mucus dries, and comes away in thin pieces. Astringent injections, stimulating liniments, and a variety of local applications, as well as internal remedies, such as tonics, mercury, &c. have been tried. These have not always, however, a good effect. At the age of puberty, the fœtor sometimes spontaneously ceases.

Fœtid discharge from the ears generally is accompanied with a destruction of the membrana tympani, and a caries of the small bones. It is usually attended with deafness, and is very obstinate. Great attention is to be paid to cleanliness, and to the state of the constitution.

§ 12. OPHTHALMIA.

Infants are subject to inflammation of the eye, which is most frequently of the kind called purulent ophthalmy. This begins with redness of the eyelids, which soon swell so much as to prevent their being opened. Then a copious and constant discharge of thick yellow matter takes place. This is found also spread over the eye. If the disease continue, and increase, slough is apt to take place. In bad cases, the eye-lids are also turned out, especially when the child cries. Both eyes are generally affected. This disease is too well marked to be ever mistaken. The cause is sometimes obscure, but frequently it is evidently owing to the application, during birth, of leucorrhœal matter. The treatment which I have found most effectual, and which has always produced a perfect, although not a rapid cure, is the application of a leech to the temple, or root of the nose, and repeating this according to the degree of inflammation; the administration of regular laxatives; the injection, by means of a small syringe, of tepid milk and water into the eyes to wash out the matter, and then throwing in a syringeful of some astringent solution. This is to be done three or four times a day. But what appears to be of most decided advantage, is the application of a small blister to the back o.

the head,(g) to be kept open by savine ointment. Amongst the topical applications, none seem to claim a decided preference. Solution of sulphate of zinc, or copper, in the proportion of two, and afterwards three grains to the ounce, or nitrate of silver, in the proportion of one grain to the ounce, or muriate of mercury, in half that strength, have all been occasionally useful. The eyelashes may be anointed every night with lard, containing a very little red precipitate, or a little ung. hyd. nit.

§ 13. SPONGOID DISEASE OF THE EYE.

Children are subject to spongoid disease of the eye. The ball becomes slowly diseased, and its structure changed, so that all the parts are confounded, and the optic nerve becomes black or brown. The tumour bursts, and a fungus shoots out. The bones become carious, the disease spreads to the brain, and the patient dies, after much suffering. This has been improperly called cancer. It admits of no cure, except by very early extirpation. Every operation that I have seen has been too long delayed, and the patients have all had a relapse.

§ 14. SCROFULA.

Scrofula is dependent on a peculiarity of constitution, derived at conception. This is often marked by a very fine skin, light hair, large blue eyes, with dull sclerotica, and delicate complexion. Others have the skin darker, or of a rough dirty appearance, the hair is dark, the upper lip tumid, and the countenance sallow, and sometimes swelled. When the scrofulous constitution is not strongly marked, the person may pass through life without any inconvenience. But when it exists in force, different parts of the body are apt, without any evident cause, to have their action deranged; their structure is changed, and then inflammation slowly takes place. The glands are most frequently affected, but the

(g) Blisters are sometimes applied in these cases to the temples, and even occasionally over the closed eyelids, with the best effects.

joints or viscera may also suffer. I do not think it necessary to describe these changes, especially as I have elsewhere entered pretty fully into this subject. I shall merely state what ought to be done as a preventive, or as a cure. In the first view, we advise whatever can strengthen the system, and preserve the different parts vigorous and in health; such as the cold, or when that produces languor or chillness, the warm bath daily, gentle friction over the whole surface for half an hour every evening, regular exercise in the open air, great attention to cleanliness, an open state of the bowels, and good nourishing diet, with a small proportion of wine. Animal food is much recommended. Sea-bathing is useful. When the glands are swelled, or other parts are enlarged, it is of service to rub them gently with oil for half an hour three times a-day, and apply, in the intervals, pledgits dipped in a solution of cerussa acetata. Hemlock poultices are also useful. Electricity or galvanism are sometimes of service. When the tumours tend to suppurate, that process should be assisted by poultiees, blisters, and electricity. The abscess should be early opened, provided there is an appearance, from the skin becoming very thin, that there will be an extensive destruction of the surface, and consequently a large sore produced. If this be not the case it is perhaps better to let the abscess burst itself: gentle stimulants are then proper. The constitution is to be treated in the way already mentioned. Muriate of lime, or of barytes, cicuta, bark, and a great variety of medicines, have been advised, but I do not know that any one can be depended on. Medicines are chiefly useful to obviate existing symptoms, such as costiveness, &c.

Diseases of the joints and spine are to be managed chiefly by issues.

§ 15. RICKETS.

The disease called rickets is characterized by flabby muscles, relaxed skin, sallow or bloated countenance, debility, listlessness, and softening of the bones, so that the long bones become more or less curved, and their extremities apparently enlarged. The ankles and wrists swell first, then the back changes its shape, and

the breast protrudes. The bones of the pelvis approach more nearly together, the sacrum coming forward. The head is increased in size, and the belly becomes large and hard. The appetite and digestion are impaired, the bowels are bound, or fœtid stools are passed. The pulse is weak and frequent. The teeth are late of appearing, and are not good. The mind is often prematurely advanced. This disease may prove fatal, by ending with water of the head, convulsions, or hectic fever; but it is often cured spontaneously, or with assistance. It usually attacks betwixt the sixth month and second year, but it has been known to affect even the fœtus in utero. It is to be treated by a course of laxatives, to bring the bowels into a proper state, the cold bath, regular exercise, nourishing diet of animal food, general friction over the body, chalybeate medicines, and warm clothing.

CHAP. III.

Of Dentition.

The formation of the teeth is begun long before the fœtus leaves the uterus. It is carried on slowly, and is not completed for several months after birth. The parts concerned in this process, are the jaw, the gum, and the soft rudiments of the tooth itself. The jaw, at first, has only a channel running along its surface; but this afterwards is divided by transverse septa, into separate cells, which are the origins of the alveolar processes. In each of these is lodged a membranous bag, containing a soft pulp. The bags consist of two lamina, both of which, especially the outer one, are vascular. These sacs adhere firmly to the gum, so that if it be pulled away from the jaw, the sacs come with it: the pulp is also vascular, and assumes nearly the size and shape which the body of the tooth is to have when ossification has commenced.

The tooth consists of two parts, bony mater, and cortex striatus, or crystallized enamel, covering the bone. The bone is formed on the pulp, which gradually ossifies; and in the eighth or ninth month of the fœtal life, all the pulps have begun to ossify, and at birth the shell is considerably advanced. Soon after this process begins, the inner surface of the sac deposits a soft earthy substance, which crystallizes and forms enamel. When ossification is advanced so far as to form the shell of the body of the tooth, the lower part becomes contracted, so as to form the neck; and as the shell thickens, the pulp, though diminished in quantity, protrudes through the neck, forming a kind of stalk or mould for the fang. If the tooth is to have two fangs, then a septum is stretched across the cavity of the neck, and the pulp protrudes in two divisions. As ossification advances on the root, the body rises in the socket, and the sac rises with it; but in proportion as the enamel is crystallized, the sac becomes less vascular and thinner, and at last is absorbed; and when the tooth has acquired its proper height, the whole membrane is destroyed. Thus it appears, that the sac is not stretched, and bursts by distention, but is absorbed, and being fixed to the neck of the tooth, and not to the jaw, it rises with the tooth.

There are only twenty teeth evolved in infancy, ten in each jaw, and these are not permanent. They are shed, to give place to others more durable and more numerous, as the jaws are longer in the adult. The permanent teeth begin to be formed even before birth. Like the fang of the tooth, they are set off from the body of the temporary tooth. A small process or sac is sent off backwards. This is lodged at the back part of the socket, where a little niche is first formed for its reception, and then a distinct socket. Hence the temporary and permanent teeth are connected together, and this connexion remains for a considerable time. In the fœtus, there are, besides the temporary teeth, the rudiments of the two first permanent grinders, therefore there are twelve sacs in each jaw. The sac of the anterior permanent grinder sends, when the jaw lengthens, a process backward, to form the next grinder; and it again, in course of time, sends off the third grinder.

Generally, teeth cut the gum about the sixth or eighth month

after birth. The two middle incisors of the lower jaw first appear, and in about a month those of the upper jaw come through. Then the two lateral incisors of the lower jaw, and next those of the upper one, appear. About the twelfth or fourteenth month, the anterior grinders of the lower, and soon those of the upper jaw, cut the gum. Between the sixteenth and twentieth month, the cuspidati appear; and from that period to the thirtieth month, the posterior grinders come through; so that the child, when about two years and a half old, usually has all the first set of teeth. These continue till the sixth or seventh year; and as the permanent teeth are in progress all this time, we find, besides the twenty teeth which are visible, twenty-eight below the gums. At this time, the two first permanent grinders appear at the back part of the jaw, and the middle incisors of the lower jaw loosen and drop out; and by degrees, all the milk teeth give place to others which are larger, stronger, and better adapted to the increased size of the jaws. In this curious process, which strongly displays the wisdom of God, we are early taught the perishable nature of our frame. But it is also a pleasing reflection, that dissolution is succeeded by a state of greater perfection.

Many children cut their teeth with great ease and regularity, but some suffer considerably. It is usual for the child to have some irritation of the mouth during dentition. The gums are hot and itchy, and somewhat swelled or full over the tooth, and the anterior edge is not sharp as formerly, but is rounded, and the investing membrane unfolded. The secretion of saliva is increased: and the stomach and bowels sometimes are rendered irritable. Partly from this cause producing gripes, and partly from pain darting through the gum, the child is seized with frequent and sudden fits of crying. The symptoms seldom continue urgent above ten days at a time. If the child be very irritable, and the tooth advance fast, or several teeth come forward at the same time, very unpleasant effects may be produced, such as severe bowel complaints or fever, or spasmodic cough, or convulsions; or the skin is affected, an eruption appearing on different parts, which is a much more trifling effect than any of the former, or the gums ulcerate, or sometimes the tongue and mouth become aphthous.

The urine is often scanty, but on the other hand, it may be too abundant; and this superabundant discharge is productive of debility. Costiveness adds to the danger of dentition. When the first grinders and cuspidati are cutting, and come forward quickly, there is great irritation, for there are then eight teeth making pressure on the gums. In every case of troublesome dentition, we have three indications to attend to. First, to allay local irritation. Second, to alleviate urgent or symptomatic complaints. Third, to support the strength.

The first is accomplished most effectually, by dividing the gum with a lancet, completely down to the tooth, if it be considerably advanced. Even when it is not so far advanced, as to be near the surface, the division of the gum gives temporary relief. Gum-sticks act something in the same fugacious manner; by enabling the child to press, or rub the gum a little, he obtains a short relief. All children instinctively thrust their fingers into the mouth, and this may be permitted; nor is there any risk of a bad habit being induced. This is as useful as the gum-stick, and safer; for a hard gum-stick is apt to be thrust into the eye, or the gum may be bruised by it. A crust of bread is often used, but part of it may break off, and choke the child. An ivory ring is safer.

Second, We allay general irritation, or fretfulness, by keeping the bowels open, and exposing the child freely to cool air. The cold bath is also useful every morning, and at night, the child, if hot, may be sponged with cold water. If this do not prove effectual, we may rub the spine and belly with laudanum, which acts as an opiate without inducing the injurious effects on the stomach, which the internal exhibition too often causes. Fever, if high, is to be abated by the use of the tepid bath, morning and evening; the bowels are to be kept open; if the child be plethoric and drowsy, besides giving a smart purge, either one or two leeches ought to be applied to the forehead; and if the determination to the head continue, the scalp should be shaved, and a small blister laid upon the occiput. Diarrhœa, if considerable, and detrimental, is to be abated by those means which will hereafter be pointed out, and especially, if it be severe, by mild opiate clysters; at the same time that we, if the stools are very bad, give small doses of calomel

at proper intervals, to bring the bowels into a better state. The greatest number of children who die during dentition, perish in consequence of obstinate or neglected diarrhœa. Sickness, loathing at food, and ill-smelled breath, require a gentle emetic. Spasmodic and convulsive affections require the warm bath, purgatives, antispasmodics, and the general treatment which will hereafter be pointed out. Opiates are not to be given without much circumspection. They are always hurtful, when there is much vascular excitement, and are only admissible when this is absent; and there is, at the same time, great irritation of the nervous system, or pain of the bowels. They ought in general to be combined either with oil of anise or assafœtida, or with both. It is not easy to describe the different symptoms which occur during dentition, or may be connected with it; but one general rule must be laid down, namely, to treat them, as we would do in any other circumstance, with the additional practice of cutting the gum. Delicate and slender children suffer chiefly from bowel complaints, and spasmodic affections; stout or plethoric children are more apt to suffer from acute fever, with determination to the head.

Third, We support the strength directly by the breast milk, arrow root, beef tea, or, if necessary, by clysters of veal soup, or calves'-feet jelly; and indirectly by restraining immoderate evacuations. If the child have been recently weaned, it is often of service to apply him again to the breast.

CHAP. IV.

Of Cutaneous Diseases.

In the following short account of cutaneous diseases, I may perhaps have committed some errors respecting the names of eruptions.* Nosological writers, unfortunately, do not agree in giving uniformly the same name to the same disease, and perhaps it is not

* I adopt the terms of Dr. Willan, not that I think his arrangement free from

always easy to give a perfect definition by words alone. I have, however, endeavoured to detail faithfully, so far as I am able, the symptoms characterizing the eruptions which I describe, by whatever name they may be called, and also to point out the mode of treatment commonly employed.

§ 1. STROPHULUS INTERTINCTUS.

The first eruption which I shall mention, is well known under the name of red gum, and is described very accurately by Dr. Willan, as his first variety of strophulus, a papulous eruption. The strophulus intertinctus, or red gum, consists of a number of acuminated elevations of the skin, of a vivid red colour, not, in general confluent, and sometimes even pretty distant from each other. The papulæ are surrounded with a red base. This redness is often the most evident part of the eruption, in very young infants, and the disease much resembles measles. It covers a great part of the trunk, and keeps almost entirely off the face. In the centre of the spot, we may observe a very minute elevation, or papula, with a clear top. There is no fever, nor has the child catarrhal symptoms. The eruption comes out irregularly, and is either more durable, more fugacious, or more partial, than the measles. On the feet, the papulæ are still more distinct. The papulæ of strophulus are often intermixed with small red specks, not elevated above the surface. They are hard, and contain no fluid, or only a very small quantity under the cuticle at the apex, giving it a glistening appearance; but they seldom discharge any fluid, and scarcely ever form pus. This eruption appears generally on the face and superior extremities, but sometimes it spreads universally over the body. On the back part of the hand, the papulæ occasionally contain a little yellow serum, but this is presently absorbed, and the cuticle

many objections, but because it is now best known. If any of my readers have leisure and opportunity to form a more correct division, I would suggest the practical utility of introducing, as part of their improvement, an arrangement of those mixed diseases, where there is a resemblance in character to two different genera; and the nomenclature, in this case, might be similar to that of the chemist exhibiting the composition.

is thrown off like a slight scurf. This variety of strophulus generally appears during the first ten weeks* of life, and is not productive of any inconvenience. It seems to be connected with the state of the stomach and bowels; and any uneasiness the child may suffer, during the continuance of the eruption, or previous to its appearance, seems referable to this source. The particular connexion existing betwixt the chylopoetic viscera and the surface, I do not pretend here to explain or investigate. I hold the fact to be established, and from no circumstances more decidedly than these, *viz.* that, in adults, certain kinds of food do, with individuals, invariably produce an eruption on the surface; and that, in children, where all the system is much more irritable, trifling irritation of the bowels is followed by cutaneous eruption, whilst the sudden disappearance of the eruption, on the other hand, is succeeded generally by sickness and visceral disorder. I am inclined to attribute to a cause within the abdomen, all those eruptions which are not produced by the direct application of irritations to the surface.† The affection at present under consideration requires no particular remedies. It is sufficient to avoid the application of cold, which might suddenly repel the eruption; and filth or other irritation, which might increase it, or superinduce another affection. Should the stomach or bowels be affected, or the child be oppressed, a very gentle laxative may be occasionally administered; or should the bowels be too open, and the child flabby, a little tincture of myrrh, or myrrh with lime water, may be given, and, if necessary, an opiate. If the eruption be repelled, and the child thereafter be disordered, the warm bath, with a gentle laxative, will be proper.

§ 2. STROPHULUS ALBIDUS.

The next variety is the strophulus albidus, which is an eruption consisting of minute whitish specks, hard, and a little elevated;

* Sometimes a few spots of this kind may be observed on the forehead of children, at the time of birth.

† Dr. Underwood is inclined to think, that when children are subject to repeated eruptions, the milk does not agree with the stomach, and ought to be changed. I am very much disposed to adopt his opinion.—See also Turner on the Diseases of the Skin, p. 69.

sometimes, but not always, surrounded by a very slight and narrow border of redness. No fluid is contained in the papulæ, which appear chiefly on the face, neck, and breast. This generally is met with after the period at which children are subject to red gum; it remains rather longer, but requires no peculiarity of treatment. Sometimes children, at a more advanced period, have this kind of eruption on the neck, which is exposed to the sun in warm weather. It has sometimes been mistaken for the itch.

§ 3. STROPHULUS CONFERTUS.

The strophulus confertus is a very frequent affection during dentition, but seldom appears before that period, though it may occur after it. It consists of papulæ, often set extremely close together, forming patches, varying from the size of a sixpence to a dollar. Such, at least, is the appearance on the face and arms, to which parts it is often confined, especially to the former. But it sometimes appears on the trunk, and there the papulæ are larger, flatter, and surrounded with more inflammation, than those on the face or arms, looking at a distance like measles. This eruption not only varies a little, according as it appears on the trunk or extremities, but also according to the age of the child. For after the seventh month, we find, especially on the arms, the papulæ pretty large; and either red, with scarcely any appearance of lymph at the top, or of a light yellow colour, but the base surrounded with a halo or inflamed rim. These papulæ may, on some parts, be distinct from each other, whilst elsewhere they form clusters so close, that the redness surrounding one, communicates with that of another, forming altogether a large inflamed ground-work. In some cases, the red patch is the prominent feature; it may be as large as a dollar, with innumerable little dots within it, like pin heads, with clear or watery-looking tops, or larger red hard papulæ. This eruption is sometimes preceded by sickness, and, in certain circumstances, has been mistaken for measles; but it is attended with little or no fever, and has none of the catarrhal symptoms met with in measles. By not attending to the characters of the two diseases, they may be confounded; and not

unfrequently, when young children take measles, the strophulus confertus appears on the arms, previous to the proper eruption, or even along with it. Dr. Underwood says, this eruption does not dry off like measles; but as Dr. Willan remarks, it often does terminate with a slight exfoliation of the cuticle. A variety of this disease appears like red patches on different parts of the body, particularly on the arm, and often coming out in succession. They are as large as a split pea, and a very little raised toward the centre. By near examination, several small papulæ may be discovered, which are something like vesicular points. In three or four days, the patches become yellowish or brown, and covered with small scurf. This is denominated by Dr. Willan, strophulus volaticus, and is said not to be very common, but I think it is frequently met with. It is seldom necessary to give any medicine for this complaint. If, however, it be troublesome, it is usual to prescribe gentle laxatives, and testacious powders. Some advise emetics, and the use of the bark; but neither, I believe, are in general necessary.

§ 4. STROPHULUS CANDIDUS.

Strophulus candidus consists of papulæ having a smooth shining surface, which appears of a paler colour than the rest of the skin, and the base is not surrounded by any inflammation. It is described by Dr. Underwood as resembling itch, but is neither red nor itchy. It generally either attends dentition, or succeeds some acute disease of children, and is justly considered as a very favourable symptom. It is most frequently met with on the trunk of the body, the arms, or forehead. In a few days the papulæ die away. No particular treatment is necessary.

§ 5. LICHEN.

A different eruption from any of the foregoing is the lichen, a term restricted by Dr. Willan, in his elaborate work, to a papulous eruption, chiefly affecting adults. It may, however, appear also in children; and I have seen it succeed some of their febrile

diseases, as for instance, measles. It consists of numerous distinct papulæ, some of which are pale at the top, but very slightly red at the base; these are generally small like pin heads. Others are larger and flatter, and more inflamed, but have always at first a clear apex, and do not end in ulceration, but die away in slight scurf. Sometimes on the body, there are small shining or silvery-looking patches, from exfoliation of the cuticle; or the skin may peel off more extensively, as if it had been blistered. They resemble often the papulæ in strophulus, but seldom form in clusters, and have not, in general, any diffused redness connecting one papulæ to another. There is, however, sometimes about the joints or fore-arm, a considerable degree of red efflorescence, covered with scurf. This eruption may be produced by exposure to heat, and by drinking cold water when heated, or other less obvious causes. It is frequent in warm weather, and a species of this is known under the name of prickly heat. It is preceded often by febrile symptoms, and the eruption itself may last for more than a fortnight, but in a few cases it goes of in a day or two. These papulæ, at different stages, bear a resemblance to two very dissimilar diseases, the itch and the measles; but it is not pustular like the itch, neither does it ulcerate; it is not very itchy, and if scratched so as to take off the top, it does not yield matter, but a little bloody scab is formed. It differs from the measles in being papulous, and having on the spots, before they form slight scurf, a clear-looking top; it in general lasts longer than the measles, and is not attended with catarrh. Further, it is sometimes accompanied with a broad scurfy efflorescence about the elbow joint, or other flexures. A suitable dose of calomel is the best remedy, or, should the patient be oppressed, an emetic and saline mixture may be given. When there is no febrile affection, it will be sufficient to keep the surface clean, by means of the tepid bath. A variety of this, named lichen urticatus, by Dr. Bateman, resembles the bites of bugs, and appears in irregular wheals, which are very itchy. This ends in small elevated papulæ, and the whole body may be successively covered with these papulæ. The itching is intolerable at night. It seems to be relieved by small doses of sulphur, and.

if the child be weak, by tonics and chalybeates. No external application is useful, if we, perhaps, except tepid oil.

§ 6. INTERTRIGO.

Intertrigo is a kind of erythematic affection of those parts of the body where the skin forms folds or sinuosities, as, for instance, the joints of fat children. It also is very common about the nates and inside of the thighs, in consequence of the urine fretting these parts. The inflamed surface ought to be washed occasionally with tepid milk and water, and the child should never be allowed to remain wet, but ought to be bathed, and gently dried after making water, when the thighs are affected. Afterward the parts are to be dusted with some cool powder, such as tutty, white lead, levigated flowers of zinc, &c. It is not usual for intertrigo to end in gangrene or suppuration, but sometimes the form of the disease changes, and the cellular substance inflames; either of these terminations may then take place, and will require the usual treatment.

§ 7. ANOMALOUS ERUPTIONS.

During dentition, or in consequence of affections of the bowels, different anomalous eruptions may appear, which are not distinctly referable to any well defined species. Sometimes we find upon the arm, one, two, or three inflamed portions of the skin, something like small pox, but rather larger, with a small acuminated speck of lymph beneath the cuticle at the apex, or sometimes the top is flattened and shrivelled. Occasionally, a greater number of pustules appear on the body, pretty large, hard, and inflamed round the base, with a white top. This kind of eruption is not attended with fever, and is neither painful nor itchy; it goes off in a few days without any medicine.

Infants, who are supplied with deficient nourishment, or bad milk, are subject to troublesome and successive crops of ecthymata, or inflamed pustules, which slowly suppurate, burst, and form brown scabs which presently fall off. They affect every part of

the body, and sometimes are combined with one or two pustules, so large and hard that they may be called boils. The colour is dependent on the constitution, the exhausted having the pustules livid or purple; the stronger having them of a more arterial colour. This eruption, named cethyma infantile, requires a more nutritive diet, or a new nurse, with all the usual means for invigorating the system; amongst which, I particularly mention, attention to the bowels, and removal to the country. If necessary, the pustules may be defended with a little mild salve. Young people, after much exertion, or from gross feeding, are sometimes affected with a similar eruption of pustules. Laxatives, with vegetable tonics, cure this. Ripe fruits, particularly gooseberries, are proper.

Another kind of eruption attacks children above two years of age, suddenly covering the greater part of the body. It consists of red elevated spots, at first sight something like a kind of pock. The spots are distinct, and most numerous on the thighs and legs. They are of a dark red colour, pretty flat, with a smooth flatted vesicular-looking top, which does not burst, nor discharge matter, but gradually dries and desquamates. The eruption is scarcely painful or itchy, and is not attended with fever. It may continue for four or five weeks, and is sometimes combined with lichen, or other cutaneous diseases. The bowels should be kept open, and some advise antimonial wine to be given, with a little tincture of cantharides.

There is a small and very itchy pustule, which begins with a black spot on the skin, and contains a sebaceous fluid, which can be squeezed out in a worm-like shape; such pustules are not uncommon in youth, and have been called crinones. They are cured by applying ung. hyd. nit. and washing with almond emulsion, containing a little muriate of mercury, or with soap and water.

Boils have been divided into the furuneulus, or acute boil, and the phyma, which is more tedious. They are hard, usually flat, with an extended base, and of a purple colour. They are sometimes solitary, and very large, but occasionally they are scattered in considerable numbers over the body. They generally proceed from a bad state of health, and, in place of requiring, as some sup-

pose, an abstemious diet, they demand more nourishment, but it must be easily digested, and the bowels should be attended to. A bread and milk poultice is to be applied to the boil, until the top open, which it does by a kind of sloughing. Scarcely any matter comes out, but a kind of ash-coloured, or yellow core, is gradually thrown out, after which the part heals. Resinous ointment is the best application during this process. Those large indolent boils, or small abscesses, which succeed small pox, or other debilitating diseases, require hot poultices, and then, when they burst, or are opened, and the pus they contain evacuated, stimulating dressings, with moderate pressure, are proper. Good diet, and even wine, may be required.

§ 8. POMPHOLYX AND PEMPHIGUS.

Authors describe some other eruptive diseases, which may be noticed here with propriety: one of these, called pompholyx, consists of a number of vesications of different sizes, appearing on the belly, ribs, and thighs, and containing a sharp lymph; they may appear during teething, or in bowel complaints, and continue for several days. These vesications are not uncommon in very warm weather; and I think boys are more subject to them, especially about the ankles, if they do not wear stockings. Lory considers this disease as a kind of erysipelatous affection, produced by the heat of the sun. It requires no medicine, but the lymph ought to be let out by a small puncture.

A similar appearance, generally attended with fever, and sometimes with aphthæ, is more serious. The vesicles, at first small, presently become pretty large and oval, and their contents turgid. They appear soon after birth, generally in emaciated infants, affect both the trunk and extremities, are surrounded with a livid inflamed halo, and when broken, are succeeded by spreading ulceration. Notwithstanding bark and cordials, the fever and irritation generally prove fatal in about a week; and only those children are saved, who are previously possessed of a tolerable degree of strength. This may be mistaken for syphilis. Some have con-

sidered it as pompholyx, under a different modification; others as a distinct disease, under the name of pemphigus.

§ 9. MILIARY ERUPTION.

Sennertus describes, under the name of sudamina, an eruption like millet seed, fretting the skin, and affecting children about the neck, arms, &c. Plenk defines it in the following terms. *Sunt vesiculæ granis milii magnitudine et similis, subito absque febre erumpentes.* The child should be bathed occasionally in tepid water. This eruption often takes place in hot weather. A similar eruption, attended with fever, is also met with, which I find very well described by Dr. Willan, in his reports on the diseases of London, under the name of acute miliaris. It does not affect infants, but children old enough to take active amusement. It begins with a febrile attack, attended with head-ach and pain in the back. The tongue is of a dark red colour at the edges, with the papillæ prominent as in scarlatina; the rest of the tongue is covered with white fur. The pulse is small and frequent. Presently the patient complains of heat and pricking at the surface, is sick at stomach, and perspires freely through the night. At a period varying from the third to the sixth day of the fever, an eruption appears, of small pustules like millet seeds. These are of a red colour, but contain at the top a white lymph, and are either diffused over the body, or collected in patches on different parts, especially the back and breast; they may alternately appear and disappear, and though the same pustule does not continue long, it may be speedily replaced. They may sometimes be combined with small red efflorescences, and generally vesicles appear on the tongue and fauces, ending in aphthous ulceration. The complaint often terminates in about ten days, but it may be prolonged even to twenty. It is frequently the consequence of being overheated, or drinking cold water in that state. It requires first of all an emetic, and then a purgative. During the course of the disease, the patient should be kept moderately cool, and use acidulated drinks freely.

§ 10. PRURIGO.

Itchy eruptions are frequently met with on children, but these are not always the true itch, nor the consequence of infection. The prurigo mitis, described and delineated very accurately by Dr. Willan, is a disease often met with in spring. It appears without any previous indisposition, and consists of soft smooth elevations of the skin, or papulæ, differing in colour very little from the surrounding integuments. When they do become red, it is in consequence of friction. If the top be rubbed off, a clear lymph oozes out, which forms a thin scab, of a dark, or almost black colour. The eruption is itchy, especially on going to bed, and if scratched, it may become pustular and contagious, which it is not in its early stage. At first, it may be removed, by washing frequently with tepid water and a little soap or lemon juice; but if neglected, it requires the application of sulphur.

A variety of this disease consists of minute red acuminated papulæ, with a very small vesicle at the top, terminating not in suppuration, but yielding, when scratched, only a little clear serum. Sulphureous preparations give relief, and time, with attention to cleanliness, confirms the cure. Sometimes very little itching attends this eruption, and it disappears by using the tepid bath.

§ 11. SCABIES.

The scabies,* or true itch, is contagious, and consists of small pustules, which have a hard hot base, with a watery-looking top. They are attended with an intolerable desire to scratch; in consequence of which, the tops are rubbed off the pustules, and scabs come to be formed, partly by blood, and partly by a kind of matter, furnished by the little ulcers. But if the pustules be not disturbed, but removed by proper applications, they end in a slight desquamation of the cuticle, "*quæ vix furfur aliquod ostendat.*"

* Children, in consequence of handling mangy dogs or kittens, are sometimes affected with an obstinate itchy eruption, which is not scabies, but may be cured by the remedies used for the itch.

The itch first appears betwixt the fingers, on the wrists and hams, but, if neglected, it may spread over the whole trunk and extremities, and, in consequence of the continual irritation, impairs the health, nay, some children die in consequence of it. In neglected cases, the inflammation surrounding one pustule spreads to another, and the part becomes universally red, with pustules or scabs, according to circumstances, scattered over it. This is often the case on the back of the hand, and fore-part of the feet. Sometimes small boils, and phymata, appear in the course of the disease, on the thighs or body, or about the face. The itch has not always the same appearance, being, in some cases, more vesicular, or more pustular, than in others. Four different varieties have, accordingly, been admitted by Dr. Willan:—1st, The scabies papuliformis, where the eruption looks like papulæ, but really consists of small pointed inflamed vesicles, which are very itchy; when these break, they are succeeded by scabs. This variety is apt to be confounded with lichen, or prurigo, when there has been much scratching, but these are more distinctly papular. 2d, The scabies lymphatica, or eruption of vesicles of considerable size, without inflamed base, but extremely itchy. These may heal by scabbing, but often suppurate, and form small ulcerated blotches, and, in the same part, we have all the intermediate steps from vesicle to small open ulcer. The disease with which this is most apt to be confounded, is eczema. 3d, Scabies purulenta, or eruption of distinct prominent pustules, about the size of a split pea, filled with yellow matter, and having a slightly inflamed base. These ulcerate in a day or two, and become then more painful. They are not unlike small pox, but are very itchy. The scabs are thin and hard, of a yellow colour, or inclining to brown. They are surrounded by a diffused redness of the skin, which often has a puckered appearance, as if drawn toward the scab. These pustules are most frequently situated between the thumb and fore-finger, or about the wrist. 4th, Scabies cachectica combines the character of the former varieties, which it exhibits at the same time, in different portions of the skin. It originates in cachectic children, without infection.

The cure may generally be accomplished, by frequent ablution,

and rubbing the parts affected with sulphur-vivum ointment,* which, in obstinate cases, may be rendered more effectual by the addition of powdered hellebore, or sulphate of zinc or sal-ammoniac. Rosenstein says, that the hands are very soon cleared, by washing them with a strong decoction of juniper-berries; and that when the eruption is great, as for instance, on the feet, he has applied cabbage leaves with advantage. They cause at first a great discharge, but the parts heal afterwards.

Sometimes the friction excites an eruption different from itch, and kept up by the remedies intended to cure it. M. Burdin remarks respecting this, that it consists of small round pustules, "qui "se remplissent quelquefois de serosité, et dont la cicatrice laisse "le plus souvent une tache d'un rouge brun, le prurit qu'elle oc- "casione est aussi moins fort que celui de la gale." In inveterate cases, the use of Harrowgate water is of great benefit, or a sulphur vapour bath has been used. In order to avoid the smell of sulphur, other applications† have been employed, such as sulphuric acid, or nitrous acid combined with hog's lard, ointment of nitrated mercury, camphorated ointment, hellebore, or corrosive sublimate, mixed with hog's lard, &c. These often fail, and even when they do remove the eruption, the cure is said frequently not to be permanent. Ointment containing white precipitate is sometimes useful, particularly in the pustular variety. Itch may be combined with other diseases, such as herpes, syphilis, &c. in which cases, it is more obstinate than usual, and may sometimes require the use of mercury.

§ 12. HERPES.

Herpes is a vesicular disease, of short duration. It consists of irregular clusters of small vesicles, which arise in close approxima-

* Dr. Joseph Clarke considers it as dangerous to use sulphur ointment with infants, lest the eruption be suddenly repelled: and advises rather to boil a piece of stick brimstone in water, in order to make a bath.

† M. Becu advises the following lotion: Take of tobacco leaves two pounds, sal-ammoniac one ounce, ammonia two ounces, water three Paris pints. Infuse for two hours.

tion to each other, from an inflamed surface, and the inflammation surrounds also the base of the cluster, to a small breadth. The vesicles, which appear rapidly, contain a pellucid fluid that presently becomes turbid, oozes gently from the opening or declining vesicle, and forms a yellowish or brownish scab on the part. In some instances, however, the vesicle ends in ulceration, and the discharge is copious and thin. If the scab be prematurely forced off, the surface below is found raw and glossy. In slight cases, the sensation is that of heat or itching, but, when more extensive or severe, the neighbouring parts are pained, and the eruption itself is preceded by some degree of fever.

A great number of affections have been comprehended under this name, many of them of very opposite characters, and even our most correct nosologists, who have excluded those which are not vesicular, have admitted, as species, mere varieties of the complaint. The first species, for example, of Alibert, is the herpes furfuraceus, or dartre furfuracée, which is a scaly, and not a vesicular disease, and his other species are also very doubtful in their nature. The subdivisions, again, of Willan and Bateman, are often founded on mere situation, or arrangement of vesicles. The herpes phlyctænodes, the first species of Willan, and the sixth of Alibert, is, perhaps, the only one to be admitted, all the rest being varieties. This, when well marked, is preceded by slight febrile irritation, for about three days. Then irregular clusters of vesicles appear, which become opaque in the course of a day. By the fourth day, the surrounding inflammation becomes less, and the areola fades, whilst the vesicles themselves begin to scab, and continue in this state till the end of the week, or sometimes a day or two longer, when the scabs fall, and leave the surface below red. The size of the vesicles varies. When small, they are called miliary, and, in this case, the clusters often spread over a considerable part of the body; and, as they do not appear all at the same time, the disease may last altogether a fortnight. When the vesicles are larger, their clusters are not in general numerous, and sometimes are solitary. Within a day or two after the appearance of the vesicles, the slight general indisposition goes off.

A slight degree of this complaint is common about the lips, or

chin, or side of the nose, and is called by Dr. Willan, herpes labialis. It is not, in general, attended with indisposition, but, popularly, is attributed to cold, which is then said to strike out.

In some cases, however, there is a degree of fever, and successive crops come out, round the mouth, accompanied with swelling, hardness, and sensation of heat in the lips.* In such cases, the fauces may be affected with a similar vesication.

Another variety has vesicles, arranged in the form of a ring, the central portion being only very slightly inflamed. As the vesicles break and scab, and the scabs fall off, this central portion throws off the cuticle in form of fine exfoliations, like bran. The size of the ring also often increases, by the successive formation of concentric circles of vesicles. Successive circles of this kind appear on different parts, particularly on the face, and upper extremities, so that the disorder is prolonged, for, perhaps three weeks. This is most frequently met with in children who are also subject to the last variety, the herpes labialis. It forms one kind of ringworm, of which there are different varieties. It is named by Dr. Willan, herpes circinatus, and is supposed to be infectious; but I believe that every variety of herpes may be inoculated. The herpes circinatus of Alibert, is a furfuraceous disease.

Another variety, also met with in youth, but not often in infancy, is popularly named the shingles, or, by Dr. Willan, herpes zoster, and, by Alibert, herpes zonæformis. It is preceded, for two or three days, by febrile symptoms, accompanied with shooting pain about the stomach, or lower part of the chest, and smarting sensation in the skin. This sensation is perceived chiefly about the trunk, and is soon attended with an eruption of irregular patches, of a red colour, a little distant from each other, and on which small vesicles soon arise. These run the usual course of herpes. Successive clusters appear, so disposed as ultimately to encircle nearly the part where they are situated, travelling, for instance, like a zone round the waist, but seldom completing the cir-

* Under this name Alibert describes an eruption, to which young girls, near puberty, are subject, and which he makes a variety of his pustular herpes. At a little distance it looks like measles, but is smaller, and pustular.

cle. Alibert has selected, as a specimen of this, in his superb plates, the disease passing round the thigh. I do not consider it as necessary here to describe any other varieties.

With regard to the causes of herpes, we are much in the dark. It sometimes appears to follow exposure to cold, or to be consequent to violent exertion; but, perhaps, it most frequently is connected with some particular condition of the abdominal viscera.

The treatment of this disease is very simple, consisting in the administration of gentle purgatives, restricting the patient from indigestible diet, and from the use of stimulants. Nothing can, with much advantage, at first be applied to the vesicles, unless it be with a view to prevent their abrasion. If any thing more active be employed, it should only be some weak astringent wash. When crusts are formed, the application of a little ung. hyd. nit. appears to accelerate their fall, to heal sooner the surface below, and to abate heat and itching. When there is much glutinous discharge, either this or some other milder ointment is useful, to prevent the linen from adhering to the part.*

* There are two diseases, which are apt to affect females, even when young, but which I have never seen in infancy. They are of the mixed character, and cannot strictly be included here. The herpes orbicularis of Alibert appears often on the cheek, as a very superficial excoriation, ending in broad thin scabs, or scales. The part is red, and a little itchy, and the scabs are generally thickest at the circumference. It is a very obstinate disease, and lasts for years. The herpes crustaceus of Alibert appears like a crust of dried honey, on an erysipelatous ground. It arises from a raw surface, with thickened margins of a purple colour. There is often swelling, and induration of the neighbouring cellular matter, and the crust itself is elevated. On the cheek it forms a thick yellowish crust; on the wing of the nose it is still thicker, so that this has been called stalactiform herpes. These diseases are often connected with a scrofulous habit, and, after remaining long stationary, sometimes end in corroding ulceration, caries, and fatal exhaustion, or hectic. Mercury may do harm, but never does good, except in a few cases, where very small doses of muriate of mercury have altered the habit. Sarsaparilla, with arsenic, is more useful, and aperient waters, containing sulphur, are also employed. Hemlock has not maintained its reputation. Only mild local applications should be prescribed.

§ 13. ICTHYOSIS.

Children are sometimes affected with ichthiosis, a disease in which the skin becomes dry, and covered with scales, resembling in their distribution, and sometimes in their appearance, those of a fish. This disease may come on at any period of life; it may even be connate, but this is very rare. It is proper to employ the warm bath, and, during its use, to pick off the scales. Their regeneration is to be prevented by friction, and repeated bathing. Sometimes children have this disease conjoined with boils.

§ 14. PSORIASIS.

The scaly tetter, dry itch, or psoriasis of Dr. Willan, consists of red rough spots, which are very soon covered with a laminated scale, sometimes as thick as paper, but generally thin, and very like a bit of the dried scale of a herring. They are irregular in their shape and size, occasionally not larger than a coriander-seed; sometimes as large as the nail of the little finger, resembling a dried fish scale pasted on the skin; and frequently they are interspersed with shining silvery-looking portions of the surface. These scales are formed by the exudation of a whitish matter, which is very glutinous, and, as Sylvius observes, stiffens the linen, when it happens to exude in sufficient quantity. In adults, some portions of the surface yield so much fluid, that the parts are quite moist, and scales do not form. The spots on children generally begin like papulæ, of small size, and vesicular at the top. These end sometimes in scurf, oftener in thin scales, as has been described. On the back of the hand, the vesicles are sometimes pretty large; whilst, in the palm of the hand, the eruption is rather pustular, and ends in broad thin rough scabs of a yellow colour. In the early stage, it is sometimes combined with strophulus. The parts are itchy, but when they are scratched, matter does not come out by the removal of the scales, but a little blood flows. This eruption often begins on the face or neck, and spreads to the body and extremities. It is very obstinate, and sometimes destroys the nails.

When it has continued for some time, the skin, especially about the hands and feet, is found to be universally red, with dark-coloured scales interspersed. The skin looks as if it had been scalded, and partly covered with thin scabs, or scales, in different degrees of adhesion; and, in some cases, the whole of the extremities, and even the body itself, or the head, become red, partially excoriated, and covered partly with scales and scurf, and partly with scabs, which are yellow, and pretty thickly set, often loose, and easily detached. Sometimes, on different parts of the body, particularly on the arms or legs, there are many soft red indolent bumps, more especially if the child have been seized with this disease soon after the small-pox or chicken-pox. The appearance on the head is nearly the same as in pityriasis, but in general it wants the white scurf. It is rare not to find the head affected in this disease. Different species of this have been enumerated by Dr. Willan, which however may perhaps be viewed rather as varieties. I do not mean to notice all those here, as it does not consist with the object of this work. 1st. Psoriasis guttata is not uncommon in children, and often spreads rapidly over the whole body, and even the face. It is occasionally preceded by slight constitutional disturbance. The eruption consists of small distinct scaly patches, of an irregular shape, resembling lepra in appearance, but differing from it in wanting the elevated border, inflamed margin, distinct circular or oval shape, and, in the surface below, being more irritable. 2d. Psoriasis diffusa, forming in large patches, which sometimes become confluent and possess the general character of the disease. A more severe variety is termed inveterata, and others are named from their situation.

Excoriation sometimes also takes place about the anus, with a slightly elevated state of the surface; in consequence of which, and the disease of the skin taking place soon after birth, I have been consulted respecting children given out to nurse, who were apprehended to have syphilis. Dr. Willan remarks the syphilitic appearance of this disease, but justly observes, that all other marks are absent. The syphilitic form of this disease is attended with hoarseness, and the patches are of a livid colour, with a slighter

degree of scaliness, and the margin is sometimes higher than the centre.

It is not, like the itch, very contagious, nor is it easy to say what occasions it; but we know, that inattention to cleanliness is favourable to its production. The application of preparations of sulphur, and ointment of nitrated mercury, with the use of the tepid bath, especially made with sea-water, daily, will often cure this disease; but, in obstinate cases, we must give some sudorific, such as antimonials, or decoction of sarsaparilla, or have recourse to the Harrowgate or Moffat waters, which have great efficacy. They should be used both externally and internally. The internal use of arsenic, as in lepra, will also be proper, if the other means fail. Solutions of soap, or of alkali, or of sulphuret of potash, form very useful baths. Decoctions of hellebore, or solution of muriate of ammonia, or of oxymuriate of mercury, are also proper, as external applications. The application of cloths wet with butter-milk, or of a poultice of butter-milk and oat-meal, sometimes facilitates the cure, and indeed when there is much irritation, only the mildest application can be borne. Mercury internally does more harm than good; when it is beneficial, it has been in the form of oxymuriate, in such small doses as have kept the bowels regular. In adult females, whose chylopoetic viscera had been defective in action, I have known the disease very severe and obstinate, and, though mitigated by laxatives, seem to be removed only by time.

§ 15. PITYRIASIS.

The pityriasis is a disease known commonly under the name of the dandriff. It consists of a dry, scurfy, and scaly eruption on the head, amongst the hairs. Near the forehead, the skin is covered with a thick white scurf, which can be removed in a powdery form; farther back, larger scales are formed. This is cured by cutting and shaving the hair, and brushing the head daily with a hard brush, washing it with soap and water, and applying ung. hyd. nit. If neglected, ulcers may form, and the disease be converted into the one next to be described. Pityriasis is sometimes infectious. A variety of it appears like small red marks on

the scalp. The circumference extends, and continues red, whilst the centre becomes pale and scaly. It is accompanied with falling off of the hair.

This disease is not confined to the head, but affects other parts. That variety named pityriasis rubra by Dr. Willan, is of frequent occurrence at all ages, although said to be most apt to appear at advanced age. It begins with a redness of variable size, and indefinite shape. It may be small, or extensively diffused; the colour becomes deeper and the surface rough; then it puts on a mealy appearance, from commencing exfoliation of the cuticle. As this advances, the part is, in a great measure, covered with small branny scales, which, as they in different spots fall off, discover the skin red below. Repeated exfoliation may then take place, and when the surface is extensive, the patient's bed is often found covered with small scales. The affected parts are itchy, and sometimes feel stiff. The skin is dry, and no perspiration can be in general naturally or artificially procured.

There is a great analogy between all scaly diseases, and often the same person exhibits, in different parts, different species. In some, the disorder has more the appearance of psoriasis, and in others, there are distinct patches of the nature of lepra. Sometimes it is not very easy to say, whether the disorder belongs most to one species, or to another. It is this pityriasis, and its modifications, which are most frequently misnamed herpes farinosus; an application also given to modifications of psoriasis, and indeed to every superficial scaly disease.

The treatment consists in regulating the bowels, avoiding a saline or irritating diet, the frequent use of the tepid bath, gentle friction with ung. hyd. nit.; the exhibition of some diaphoretics, such as decoction of sarsaparilla, with a little antimonial wine, arsenic, sulphureous waters, internally and externally.

§ 16. LEPRA.

Lepra is a very common disease amongst children, and is vulgarly known under the name of scurvy spots; others commonly call it ring-worm, or herpes farinosus. The species to which

young people are subject, is the lepra alphoides. This appears in the form of small patches, of nearly a circular form, seldom exceeding half an inch, but more frequently less. The spots are first red, but soon become covered with small shining scales. The margin is a little elevated, and usually somewhat inflamed. These patches are generally confined to the extremities, particularly the inferior, but they may also appear on the trunk. This, however, is oftener the case with some of the other scaly diseases already noticed. They also, much more rarely, become confluent. The causes of this obstinate disease are obscure. The treatment which I have found most useful, consists in the constant application of ung. hyd. nit., frequent ablution, or rather the tepid bath, mild diet, the use of tonic laxatives and the administration of arsenic. A dram of the common solution may be added, to four ounces of water, and of this mixture a tea-spoonful may be given in a glass of water, three times a-day, to a child three years old. It should always be given after eating, and not when the stomach is empty. If it produce sickness or griping, the quantity is to be diminished, after suspending it altogether for a short time. If it produce no such effect, the dose may be gradually increased to double the quantity prescribed, watching, however, the state of the stomach. It requires sometimes to be continued for several weeks, before a salutary effect be produced, but we must not abandon it too hastily on that account.

§ 17. IMPETIGO.

Impetigo is a term differently applied by writers, and hence uncertain in its meaning. Some confine it to a pustular, and others extend it to a vesicular, or herpetic eruption. It appears in clusters of small pustules, which are rather flat, filled with yellow matter, somewhat irregular in their shape, and inflamed at their margin. These are set pretty close to each other, and the whole group seems a very little higher than the surrounding skin. They are itchy, and pungent, and soon break, discharging much ichor. The surface has a raw glossy appearance. Then the part becomes covered with scabs of a greenish yellow colour, and, after some

weeks, the surface below healing, they fall off, and discover it to be red and scabrous, and easily fretted, so that the discharge and scabbing may be again renewed. The healing process generally begins in the centre of the patch, and occasionally, as it heals, these concentric and enlarging circles of pustules, successively appear as in ring-worm, and this variety has been called impetiginous ring-worm. The pustules are often mixed with distinct vesicles, filled with transparent fluid, which presently becomes dark, or even bloody, and then crusts form, which are rough, of a yellow colour, inclining to brown. There is a good deal of surrounding redness, and radiation of the skin. The vesicles are generally, in this case, the chief portion of the eruption, and are more distant or scattered than the pustules. This variety is oftenest met with on the hand, and about the knuckles and fingers. This bears a resemblance to the scabies purulenta, but the pustules are smaller, and more clustered, and it is not infectious: the discharge is greater, and the skin rougher and redder. This variety is more frequent with children, whilst they are seldom affected with the other kinds. It has been divided into the impetigo figurata, and sparsa; the former, however, differing only from the latter in the pustules being clustered, whereas, in the sparsa, they are scattered distantly, and especially over the inferior extremities. Other varieties have been enumerated, but do not fall to be noticed here, as they rarely occur in childhood, such as the erysipelatous, beginning like rose, and then in place of blisters forming, an eruption of psydraceous pustules appears; the scabida, where the whole limb becomes cased in a crust; the rodens, which is a malignant and spreading sore. The best internal remedy is sulphur: if that fail, mild diaphoretics and sarsaparilla may be given. Topical stimulants do harm; mild applications, such as sulphur ointment, or cerussa ointment are better. In very irritable cases, ablution with tepid water, and smearing the parts with cream, or fresh oil, is more useful. In the scabby state, sulphureous waters, as a lotion, and also taken internally, are useful. When cured, the cold bath prevents a relapse.

§ 18. PORRIGO.

Porrigo, or tinea, is a collection of achores, or pustules, containing a yellowish-coloured fluid, something like honey, and ending sometimes in the production of a raw and secreting surface, but oftener in the formation of scabs, which are generally white or yellow, but sometimes darker, from an admixture of blood. The pustules begin on the face or head, and have their chief seat sometimes in the one, sometimes in the other of these parts, or occasionally both are pretty equally affected. The pustules there are pretty large, and have a red margin. They are not in general painful, but are itchy, especially at night. The matter discharged is often abundant, and sometimes so irritating, that the absorbent glands about the lower jaw or neck swell, and suppurate. Glands on distant parts of the body, or on the mesentery, are sometimes, in unhealty subjects, enlarged, as a concomitant symptom. Over the body there are also many pustules, which are smaller than those on the head. They have a red base, and lymphatic top, and are itchy. Presently the straw-coloured fluid they contain exudes, and forms flat ragged crusts, of a bloody, or dirty-brown colour. The proportion is, however, not always the same between cuticular redness and incrustation; for often, especially about the back of the neck, the whole surface is of a dark-red colour, with only small loose scabs, scattered pretty thickly over it. In other instances it is intermixed, in various parts, with furfuraceous patches, and with papulous eruption, like porrigo. When the scabs fall off, the skin below is left red, but no scar remains, unless in very bad cases, where deep ulceration has taken place. Very extensive excoriation, yielding much secretion, and having an alarming appearance, leaves no permanent mark, or cicatrix. This disease is infectious, and is generally, if not always, dependent on a scrofulous constitution.

This disease has been divided into many species, but no arrangement, that I have seen, is free from objection; and I have no wish to add to the number, but will describe what I have met with, under the names employed by Dr. Willan.

Neither the names nor the descriptions of different writers agree, and many seem to form distinct species of cases, which, from description, appear to have no dissimilitude. Alibert and Gallot say, that nine-tenths of cases are tinea favosa, most of the other tenth, tinea granulata, and that the remainder consists of rarer species, including the tinea muciflua, which is a mere variety of Dr. Willan's porrigo favosa.

1st. Porrigo larvalis, so named on account of the crusts covering the face like a mask. It is also known under the name of crusta lactea, or milk blotch, ignis sylvestris, or volaticus. The tinea muciflua of Alibert may be considered as synonimous, both with this and with the last species of Willan, the porrigo favosa, which is a mere variety, differing in nothing except in the pustules being a little longer. It usually begins on the brow and cheeks, by an eruption of clusters of small achores, from an inflamed or red surface; or of larger and rather sparser mellicerous-looking pustules, called favi, and in that case constituting the porrigo favosa of Willan. The pustules spread on the face, and amongst the hair, over a great part perhaps of the scalp, or they may be more confined round the margin of the scalp, and about the ears. Numerous pustules are also often scattered over the body and extremities, but these are seldom so large as those on the head. The pustules, which are itchy, soon break, and the viscid fluid they contain hardens into a crust, sometimes thin, sometimes pretty thick, but generally yellowish, if not tinged with blood. When the scabs are rubbed off, or drop, the surface below is red or purple, but not chopped, and many places are found covered still with little fragments of crust. In other cases the discharge is so profuse, that time is not allowed for scabbing, but the whole surface, except the upper margin, or one or two small patches of crust, is raw and excoriated, and the discharge falls in large drops. In a few instances, where there is greater irritation, or the part has been deeply and hastily scratched, little cup-like ulcers form; and, except in such spots, no cicatrix is ever left by this disease. Even in those cases, the health does not suffer, farther, than from want of rest, and fretting from the itchiness. When the urine acquires a peculiar smell, like that of cats, the disease is supposed to be on

the wane. This eruption, if it do not depend on, is at least very prevalent in scrofulous habits. It has been attributed to the richness of the milk, but it is just as frequent in those who are sparingly fed. It seems to be more connected with indigestion, or bad state of the bowels, and also is often associated with, if not excited by, the irritation of teething.

In the treatment of the milder varieties of this complaint, it is sufficient to give regularly some gentle laxative, as rhubarb and magnesia, interposing occasionally gentle doses of calomel, or different preparations of sulphur may be given for the same purpose. The diet is to be attended to, and if the child be plethoric, barley meal, as being less nourishing than some other grains, may be given as food; a decoction of the viola tricolor, has been advised by Strack and Stoll, but I do not know that any internal medicine is useful, farther than as required by the bowels. Soda or potash, in such doses as keep the bowels open, are useful. As for bark and other tonics, it is difficult to get them administered, and I have seen little cause to have confidence in them. The same may be said of cicuta. Local applications in slight cases are not demanded; but when they are, on account of the number of the crusts, and the itching, preparations of sulphur and mercury are proper. The sulphur ointment, or sulphur with oil of bays, or charcoal ointment,* or ung. hyd. nit. may be applied three times a-day; and the red portions which are not defended by crusts, may be washed with lime-water, or water in which quick-lime and sulphur has been boiled, or a weak solution of muriate of mercury, or solution of acetate of lead. When there are few scabs, but much excoriation, and, indeed, wherever there is an irritable surface, mild applications must be employed along with laxatives. The salve I have found most useful in such states, is ung. cerussæ, whilst the parts have been also bathed with a very weak solution

* Powdered charcoal, mixed with as much lard as makes it into a salve or paste, has at least the effect of destroying the bad smell. Some use it, in the proportion of only a fifth part of charcoal, and Alibert prefers that made of pitcoal. Others mix it with sulphur, both Capuron and Gardien join in testimony to its advantage; but I fear I must say of it as of other applications, that it cannot be certainly depended on. An opposite prescription, namely, a salve made with manganese, instead of charcoal, has been advised, but I am less disposed to trust to it.

of muriate of mercury, in emulsion of almonds. Some have proposed to establish a counter-irritation elsewhere, by a small blister or issue, but this is not always safe, in such a state of the skin.

2d. Porrigo furfurans is more frequently met with in women than in children. It is confined to the scalp, and the pustules are small, contain little fluid, and soon form thin scales, so that the disease very much resembles pityriasis, but differs from it in its origin, and also in the occasional re-appearance of the pustules, with moisture. The hair becomes thinner and more brittle. The treatment consists in shaving the head, and removing the scabs or scales by ablution with a sponge, and soap and water. Then, if the skin be tender, or irritable, cerussa ointment may be applied, or lard mixed with a fourth part of its weight of cocculus Indicus, or of charcoal. If less tender, some stimulating application may be made, as, for instance, ung. hyd. nit. or decoction of hellebore, which has been recommended by Dr. Heberden.

3d. Porrigo lupinosa, or the tinea granulata, and tinea favosa of Alibert, is a tedious and obstinate form of the disease. It is chiefly confined to the scalp, but occasionally small patches appear on the extremities. On the head many separate clusters of achores form, and produce crusts or scabs, about the size of a sixpence. Those are more elevated at the margin than the centre, which is depressed and powdery in its appearance. The colour is dirty white, unless when tinged with blood, and the appearance like dried mortar: The smell has been compared to rancid butter. These patches are not confluent, but the intervening skin is furfuraceous, or scabby, and if neglected, almost an entire encrustation may cover the head. It is named from a supposed resemblance to the seeds of lupines.

It is necessary to have the hair removed, which it has been proposed to effect, in this and all the other species of the disease, by applying a pitch plaster to the scalp, and then forcibly tearing it off, that it might pull out the hair. This barbarous practice is now abandoned. Depilatories, as quick-lime, have also been proposed; but it is always practicable, by softening the scabs, and repeated clipping and shaving, to get the hair removed. Both for

this purpose, and also to expose the diseased surface, it is necessary to apply saponaceous lotions, poultices, and mild ointment, to soften and loosen the scabs; afterwards the surface is to be frequently anointed with an ointment consisting of oil of bays, sulphur vivum, and camphor, or axunge with hyd. precip. alb., or ung. hyd. nit., or ointment containing hellebore. Dr. Underwood recommends the lotio saponacea, or decoction of tobacco, but this is dangerous, if the skin be abraded. Mr. Barlow advises the following lotion: R. kali sulph. ʒiii., sap. alb. ʒiss., aq. calcis ℥vii ss., spt. vini ℥ii., M. An oiled cap has been advised in porrigo, to retain the applications, and keep the parts warm, but I question if it be of utility.

4th. Porrigo scutulata, or ring-worm of the scalp, seldom occurs before the age of three or four years; but when it does take place, often continues not only for many months, but in varying degrees, for years. It begins with distinct clusters of very small itchy yellow achores, which break and form thin scabs, covering the original patch, which is somewhat of a circular shape. The base of each little achor is red. The clusters are thickest at the margin, and the pustules fewest toward the centre, where the scabs are thinnest and drop off first. When the scabs or scurfs fall off, the skin is found to be red and shining, and very speedily red pustules appear, with a more extended margin, whilst the centre becomes first a little redder, and then more scurfy. The hair, at the affected part, becomes lighter in colour, and more woolly, thinner, and presently at the central part falls quite off. Many of these rings form over the scalp, so that we have at last, at different parts, numerous patches which are bald, or thinly covered with hair, and exhibiting the disease in all its steps; some bare and shining, sprinkled with scurf; others, with the exterior circle of yellow achores, and inflamed margins; others, in a state of crust or scab, and so long as the surface retains any unnatural appearance, we may be sure that the disease is still to return. Similar appearances are observed on other parts of the body, or there may be modification of herpes or lepra.

This disease may appear without any evident cause, but most

frequently it occurs from infection, by using the same comb, or towel, or cap, with one who has already the disease.

In this, as in the other species, it is necessary to keep the head shaved; but this is to be done with as little irritation as possible. Various applications have been proposed, but when there is much tenderness, we must begin with the mildest, or perhaps be satisfied with frequent ablution, or the use of very weak solution of muriate of mercury in emulsion of almonds, or cerussa ointment, or charcoal ointment. When there is little inflammation or tenderness, and we have the dry scurfy or scaly state most prominent, we must use more stimulating applications, and these are always necessary sooner or later. They must be varied according to their effects, and so must their strength. The mildest, perhaps, is the manganese ointment, already noticed in a note. More acrid are prepared from muriate of mercury, acetate of copper, cantharides, tobacco, capsicum, hellebore, arsenic, gunpowder, nitrous acid, alum, &c. Dr. Hamilton strongly advises the ointment of Banyer* alone, or diluted with lard. Some have employed undiluted muriatic or sulphuric acid, or strong solution of common salt. All of these, or other stimulating applications, have succeeded; but not unless prudently employed, the strength never being greater than the part could bear. In too many other cases, as Capuron observes, when speaking of irritants, after having more or less "martyrisée la tête," they have failed. The disease at last wears itself out.

§ 19. SCABS FROM VERMIN.

The bloody scabs which are formed on different parts of the head, especially in the hollow near the neck, in consequence of vermin, are cured by combing and washing the hair daily, and rubbing some mercurial preparation on the scabs; whilst an ointment, composed of oil of bays and stavesacre, should be rubbed over the

* R. cerus. lbss. litharg. aur. ʒii. alum. ust. ʒiss. mer. sublim. cor. ana. ʒiss. axungiæ lbii. terebinth. venet. lbss. m. fiat ung. ad scabiem.

scalp among the hair, or the powder of stavesacre may be dusted in among the hair.

§ 20. ALOPECIA AND OPHIASIS.

Children and adults are occasionally affected with baldness without any of the foregoing complaints being evident. Celsus terms this area, which consists of two varieties, the alopecia, where the baldness occupies irregular portions of the scalp; and ophiasis, where it spreads from the occiput round the head, in a serpentine direction. Usually the patches are nearly circular, and the skin is quite bare, shining, and smooth, whilst the neighbourhood has the ordinary appearance of the scalp, and the hair is healthy. This has been considered as a species of porrigo by Dr. Willan, and is called porrigo decalvans, but there is no proof that it is either necessarily or frequently preceded by the formation of achores. The patches increase in size and number, and at last, perhaps, the whole head, with the exception of one or two tufts, is bare. Then, without any evident cause, the skin assumes a more natural look, and hair grows. The treatment consists in having the head shaved once a-week, and rubbing the surface twice or thrice daily with some stimulating substance, such as olive oil, with as much nitrous or muriatic acids as makes it gently pungent, but not acrid. Strong camphorated embrocation, or spirits and oil of turpentine, may be used, or some other essential oils, or tincture of cantharides, or blisters, or solution of nitrate of silver, so strong as to irritate a little.

§ 21. PURPURA OR PETECHIÆ.

Purpura, or petechiæ sine febre, is a disease not uncommon with children, particularly those who live in confined houses, or are fed on poor or improper diet. It consists of an eruption of small purple spots, which are circular, not at all elevated, seldom larger than the diameter of a coriander seed, more frequently of the size of the head of a pin. They are scattered over the whole body, and even over the hairy scalp. They come out suddenly,

without any fever or apparent indisposition, and go off slowly. They are not in general attended with foul tongue, spongy gums, or fœtid breath, and the fæces do not become unnatural, but they sometimes are so before the disease takes place, and the belly may be very tumid, but these are not essential symptoms. By good diet, the use of acids, and removal to the country, together with moderate exercise in the open air, this disease is easily removed; or sometimes it goes off without any particular change being made in the mode of treatment. I have never seen this disease affect children till after they were weaned. This eruption is sometimes intermixed with hard papulæ, forming a disease described separately, under the name of lichen lividus, by Dr. Willan. These continue for a considerable time, and end by slight exfoliation of the cuticle, but afterwards may be succeeded by a new crop. No peculiarity of treatment is required. A worse species of this disease affects children as well as adults, and attacks more slowly. For a considerable time before the spots appear, the patient is languid, and feels uneasy at the stomach. Then red spots, larger than in the former species, appear on the extremities, especially the legs, which are painful before the eruption comes out. The body is next affected, and the spots very soon become livid; sometimes vibices are also observed on the skin. This disease is attended with frequent and daily hemorrhage from the nose, mouth, alimentary canal, or vagina, and sometimes even from the toes. This species occasionally proves fatal, but it is often cured by the use of bark, wine, acids, good diet, and country air. It is, however, frequently very tedious. In worse cases, and in feeble children, the disease often begins with livid blotches on the scalp, which presently have the skin abraded; and then we may find some of them moist, and discharging blood or bloody matter; others dry, but without any scab or a cuticle; others covered with a thin black crust. Gangrenous sores form behind the ears; and the gums, especially near the symphysis of the jaws, become foul, and covered with a brown lymph. An eruption of petechiæ then suddenly appears, and the child generally dies.

§ 22. ERYSIPELAS AND ERYTHEMA.

Erysipelas* sometimes affects children and even infants very soon after birth.† This disease appears to have been noticed by Avicenna, under the name of undimiam, or humid erysipelas, and afterwards at different times by other writers; but was first accurately described by Drs. Underwood, Garthshore, and Broomfield. Dr. Underwood conceives, that it rarely makes its attack after the child is two months old, oftener a few days after birth. Dr. Broomfield, however, saw it in a child much older, and I have met with the same circumstance. It makes its attack in general quickly, and the worst kind begins about the pubis, and spreads along the belly and down the thighs. There is not a great swelling, but the parts become hard, purple, and often end in mortification; so that the organs of generation drop off. This kind very frequently proves fatal, the peritoneum and intestines partaking of the disease. It is a variety of the erysipelas gangrænosum of Dr. Willan. A milder kind, which I have met with much oftener, begins about the hands and feet, or not unfrequently the neck or face; and it is worthy of observation, that this frequently ends in suppuration; and on the neck especially, a very large collection of matter may be formed.

In the milder kind, the redness is more bright, and the heat greater than in that which tends to gangrene; but, if there be much tumefaction or hardness of the subjacent cellular substance, it is difficult to prevent the formation of pus. The treatment consists in giving a smart purgative, and keeping the child cool. The heat of the part is to be abated by the application of cold water, which is better and safer than any more medicated lotions. The

* Erysipelas is attended with fever, and the part affected is red and hot, with soft diffused swelling. The redness disappears when pressure is made with the finger, but immediately returns when that is removed. There is a tendency to the formation of vesicles, which bursting, form either scabs or troublesome ulcers.

† Dr. Underwood says, he once saw a child born of healthy parents, with sub-livid inflammatory patches, and ichorous vesications, about the belly and thighs; but by the use of bark, and especially the mother's milk, it recovered.

usual remedy is flour, which does no good, unless as a medium for the frequent application of cold. The prejudice against washing the skin is quite unfounded. If suppuration take place, a bread and milk poultice is to be applied, and the matter should be early let out, and the parts gently supported with a proper roller, applied over mild dressings, in order to prevent the formation of sinuses. If these take place, they must be opened. The strength is to be preserved by means of a good nurse, and giving cordials, as for instance, white wine whey.

In the worst kind, or that which tends to mortification, the colour is, from the first, or, at least, very soon becomes, darker, or purple; there is less heat, nay, sometimes the skin speedily feels colder than natural, the subjacent cellular substance is first pretty hard, and then becomes more flaccid, without fluctuation, and the most prominent points become livid or blue. The constitutional debility, and the advancement toward mortification, and spreading of that state, keep pace with each other. It is evident, that the local treatment applicable to the former species would be hurtful here, unless in those few cases, where this is preceded by more distinct symptoms of increased arterial action than is usual, such as heat. In these, cold may, at the outset, be applied cautiously, but never after the temperature has become natural, or nearly so. In general the best application, from first to last, is camphorated spirit of wine, which was long ago recommended by the late intelligent Dr. Garthshore. If sloughs form, and the child still survive, a bread and milk poultice, with charcoal, will be proper. Ammonia, given early, in doses of from five to ten grains every three hours, has been of service; but I have derived more advantage from calomel, in such doses as to act on the bowels, than from any other medicine. Green fœtid stools are generally brought away. Bark has also been given, but the precise degree of advantage derived from this medicine in infantile diseases, is not yet fully ascertained. Still when it can be easily given, and agrees with the stomach and bowels, or when it can be administered and retained as a clyster, I am disposed to advise it, and would employ it. I need not add, that the greatest care must be taken to support the strength by suitable nourishment, and cordials pru-

dently exhibited. The best of these is wine whey; opiates are only useful when there is much irritation, or a diarrhœa. It is an error to give them indiscriminately as part of the cordial plan, for they are of no service except in these two views. Mineral acids are rarely, if ever, proper for infants.

Erythema, according to nosologists, differs from erysipelas, in not being attended with the same diffused swelling, nor having the same tendency to form vesications; neither is it preceded or accompanied by any regular fever, though the system may be occasionally disordered during its appearance. In some cases, the inflamed part seems at first to be rough, as if covered with innumerable papulæ, but this appearance presently goes off. The treatment is nearly the same as in erysipelas. Sometimes small, irregular, erythematic patches, accompanied with œdematous swelling, appear about the joints, eye-lids, or different parts of children,* with fretfulness or feverishness. They in general require only to be kept clean, by being bathed with tepid milk and water, and dusted with some cool absorbent powder, or bathed with vinegar. Calomel is of service, and should be given pretty freely.

After the cow-pox, erythematic patches sometimes appear, not only on the arm, where the inoculation was performed, but even on more distant parts. This is most apt to take place after the vesicle has arrived at the height, or is on the decline. The inflammation sometimes ends, if not in gangrene, at least in a livid state of the parts, with fatal debility. Spirituous applications are soon necessary. When the part becomes livid, the strength must be carefully supported, and the bowels opened. In the commencement of this affection, saturnine lotions are proper, and often remove the disease. Calomel is useful. Dr. Willan describes this as a species of roseola.

There is a species of erythema, erythema nodosum of Dr. Willan, in which the patches are raised toward the centre. This elevation takes place gradually. In a few days, hard and painful tumours are formed, which threaten to suppurate, but they presently

* The erythematic patches produced by the bites of bugs, &c. in those whose skin is delicate, are distinguished by having a small mark or speck in the middle.

subside, soften, and end in desquamation. These are most frequent on the chin, but they may affect any part of the body. Laxatives are proper.

§ 23. EXCORIATION BEHIND THE EARS.

Excoriations frequently take place behind the ears, especially during dentition. The skin under the lap of the ear is covered with small pustules, and the inflammation extends from one to another. Sometimes a kind of erythematic inflammation takes place without pustules, and ends in vesications, which discharge thin matter. This complaint is not generally dangerous, but it is sometimes troublesome, and causes swelling of the lymphatic glands about the jaw and neck. Occasionally, however, the parts become first livid, and then gangrenous; and in such cases the child generally sinks, even although the sloughs begin to separate. In mild cases of sore ears, it is seldom necessary to do more than wash the surface frequently with milk and water, and apply a little lint spread with spermaceti ointment, mixed with the white oxyde of mercury. If the part be very itchy, and not healed by this application, it may be bathed with rose water, containing a little tincture of opium, or weak solution of acetate of lead; but astringent lotions, or such applications as tend to heal the surface speedily, if it have been long abraded or discharging much, are, unless purges be frequently given, justly esteemed dangerous, and apt to excite disease within the cranium, especially in those who are predisposed to convulsions or hydrocephalus.

If other applications are necessary, the citrine ointment, or liniments containing acetate of lead, calx of zinc, juice of scrofularia, sulphur, charcoal, cerussa, &c. have been employed. The last of these is often the best.

When the parts become livid, or threaten to mortify, camphorated spirit of wine should be applied with a small brush, and the part dressed with mild salve; afterwards, when slough has formed, the fermenting poultice is to be used. The strength must be carefully supported. The bowels should be kept regular.

§ 24. ULCERATION OF THE GUMS.

The gums, about the time of dentition, or sometimes when the first set of teeth are shedding, become spongy and ulcerated, discharging a quantity of thin fœtid matter. This at first may generally be stopped, by applying a mixture of muriatic acid and honey, in such proportions, as to taste pretty sour; or the parts may be frequently washed with equal parts of lime-water and tincture of myrrh, or with a solution of sulphate of zinc.

If neglected, the ulceration becomes either fungous, and is called scorbutic ;* or sometimes of the kind which resembles sloughing phagedena, that is, a foul, fœtid, spreading ulcer, destroying the gums, and in some cases the jaw-bone and cheek; so that if the child survive, no teeth are afterwards formed in that part of the jaw. Occasionally, from the very first, this disease assumes a malignant form, beginning with some degree of inflammation of the gum, generally where the incisors should appear. The part is not swelled, but bright, and of a pale red colour, and this extends along the gums a considerable way. This soon ulcerates, forming a line along the gum, marked by a white or brownish slough; whilst exterior to this, the surface is inflamed, and this inflamed part next ulcerates; so that inflammation precedes ulceration, till the mouth and cheeks be affected and a large fœtid sore formed, which soon injures the bones. This disease has been called the canker. It is attended with considerable discharge of saliva, and the breath is very fœtid. Good diet, the internal use of acids, and great attention to cleanliness, at the same time that we use mildly acid or spirituous applications locally, are the most likely means of cure.

In some families many of the children are subject to a spongy and ulcerated state of the gums, which thus expose the teeth down to the jaw, or these become loose. The gums bleed, and some-

* In this case, some have recommended stimulants and astringent lotions, others compression. M. Berthe advises the part to be cut off; and Capdeville proposes actual cautery.

times hemorrhage takes place from the nose, and there are livid spots on the skin. This is best remedied by removal to the country, the free use of ripe fruit, and vegetable acids, bark, laxatives, and nourishing diet. Solution of borax is one of the best local applications.

§ 25. EROSION OF THE CHEEK, &c.

Another corroding disease begins in the cheek itself, or the lip. It commences with some degree of swelling, which is hard, and firm, and shining. It generally begins on the cheek, which becomes larger than the other, and the upper lip becomes rigid, swollen, and glossy. On some part of the tumified skin, generally on the cheek, we observe presently a livid spot, which ulcerates and spreads, but laterally and downwards. Being generally seated near the mouth, it soon reaches the gums; and even the tongue partakes of this disease, which is of horrible aspect. We often find a great part of the upper or under lip destroyed, perhaps only a flap or portion of the prolabium left, all the rest being eaten away. The gums are foul, the teeth loose, the tongue thickened, partly destroyed, and lying so close on other diseased parts, that we cannot say what is tongue or what gum, except by the child moving the tongue; and the mouth itself is filled with saliva. The ulcer is foul, shows no granulations, but appears covered with a rough irregular coat of brown lymph. The surrounding parts are somewhat swelled: near the ulcer they are hard and red; farther out on the cheek, they are paler, and have more of an œdematous look. These local appearances are accompanied with emaciation and fever, and the child is either restless, or lies moaning in a drowsy state. This disease often proves fatal; sometimes, indeed, the parts cicatrize, or the patient recovers after an exfoliation of part of the jaw-bone. This ulcer is best managed with stimulants, such as diluted muriatic acid, solution of nitrate of silver, camphorated spirit of wine, tincture of opium, &c. but sometimes it is necessary to give these up for a carrot or a fermenting poultice. The bowels are to be kept open, the strength supported by milk, soups, and wine; and acids, with ripe fruit, given liberally. Before ulceration takes place, the best

application is camphorated spirit of wine, or we employ friction, with camphorated liniment. A course of gentle laxatives is useful.

Another disease, destroying the parts, is called noma, which differs from the former, in destroying rather by gangrene than ulceration. It attacks chiefly the cheeks and labia pudendi of children, and begins with a livid spot without pain, heat, or swelling, or with very little; and is not preceded by fever. It ends in gangrene, which destroys the part, and the patient often dies in a few days. It is to be treated with saturnine applications, or a fermenting poultice, whilst opium and wine are given internally, with or without bark, according as the stomach will bear. The bowels must also be excited to action.

Some children, more especially those of a scrofulous habit, suffer much from a fretting and inflammation, which often, at the same time, affect the nostrils, upper lip, and labia pudendi. The mons veneris and labia, are tumified, red, and very itchy. They sometimes are covered with minute blisters, or little scabs, or yield serous discharge. The internal parts furnish muco-purulent matter, and there is pain in voiding the urine. The child is pale, the bowels in bad order, the pulse frequent, the appetite bad, and the sleep disturbed.

I have never found any thing so useful as the application of white lead ointment, and bathing the parts frequently with solution of sugar of lead, having a small proportion of vinegar added to it. The bowels require also to be carefully attended to.

A more formidable affection I have occasionally found to succeed measles or scarlatina, but it may likewise occur without any preceding disease of a formed or specific kind. The labia, particularly within, are inflamed and livid, and vesicated, and yield as in the former case a thin muco-purulent discharge; and there is great pain in passing the urine. Very speedily the internal surface of the labia, the nymphæ, and clitoris, are covered with ulcerations, succeeded by brown fœtid sloughs. There is, from the first, languor, paleness, and debility, with small, frequent pulse, and depraved action of the bowels. As the disease advances, the debility increases; sloughing and ulceration spread, and the patient

gradually sinks. It is a very fatal disorder. It is sometimes conjoined with the affection of the cheek, already described. It requires the use of mild laxatives, sedulous attention to nourishment, and the judicious exhibition of wine and laudanum, to allay irritation. The parts must be kept very clean, bathed frequently with solution of acetate of lead, and dressed with salves, containing oxyde of lead, or of zinc. If the slough be deep, or extensive, the fermenting poultice is proper. The actual cautery has been employed on the continent, but never in this country. A variety of this disease, differing in no essential symptom, is attended with a fever *sui generis*.*

§ 26. APHTHÆ.

Aphthæ are small white specks or vesicles, appearing on the tongue, inside of the cheeks, and the fauces. They are extremely common, and almost every child has at one period or other an attack. This disease appears under two forms. The mild, in which the eruption on the mouth is slight, and the symptoms comparatively trifling; and the severe, in which the local disease is extensive, and the constitution greatly affected. In the first or milder form, a few scattered spots appear on the mouth, as if little bits of curds were sticking to the surface of the tongue, or within the lips. These in a short time become yellowish, and then fall off, but may be renewed for three or four times. They leave the

* Mr. Wood describes a very severe variety of this disease, affecting the external parts. It is preceded by febrile symptoms, but soon there is pain in making water, and the parts are found to be inflamed and dark coloured. In a few hours afterwards vesication appears, which ends in ulceration, and the surface becomes excessively tender. The fever increases, and along with it the debility. The ulceration spreads and becomes deep and foul, but mortification rarely occurs. It is a fatal disease, but by the use of bark, cordials, and laxatives, with tepid saturnine poultices, and afterwards dressing with mild salves, several recovered after the end of perhaps three weeks. Purulent discharge from the vagina is apt to remain for some time, and contributes to keep up the debility. Med. Chir. Trans. Vol. VII. p. 84. A similar disease is described by Dr. Hall, in the Edin. Journal for Oct. 1819. M. Cevoule maintains that it is almost always the consequence of a solitary ulceration on the inside of the mouth, or labia, and is not preceded by fever, the constitutional symptoms being merely symptomatic.

parts below of a red or pink colour. The child, in this complaint, is generally somewhat fretful, the mouth is warmer than usual, and the bowels rather more open, and sometimes griped, which has been attributed to an acid state of the saliva. The stools are altered in their appearance, being green, or containing undigested milk, or of an offensive smell. There is no fever or general indisposition, except what may proceed merely from irritation of the bowels. It is most frequent within the first month, but may occur later.

In the severe or worst form of this disease, a fever,* even of a contagious nature, precedes, or attends the aphthæ; and the child is sometimes drowsy and oppressed for some hours, or even a day or two before the spots appear, and occasionally is affected with spasms. The fever and oppression are sometimes mitigated on the appearance of the aphthæ. The eruption is pretty copious in the mouth, and may become confluent, so that almost the whole surface is covered with curdy-looking matter. The stomach and the bowels are very much disordered, and the child vomits and purges. The stools are generally green, sour-smelled, and sometimes acrid, so that the anus is excoriated. The aphthæ may not be confined to the mouth, but may descend along the trachea, producing cough, and great difficulty of breathing; but much oftener they go along the œsophagus to the stomach, which becomes very sensible, is painful to the touch, and the child vomits speedily after sucking. The mouth is likewise tender, so that the child sucks with pain, and with difficulty, if the crusts become hard, the tongue being rigid. After a short time, the aphthæ change their colour, and begin to fall off; but they may be renewed, and the

* Dr. Underwood is of opinion, that fever very rarely attends aphthæ, when it appears as an original disease. Foreign writers have divided this form of the disease into four stages:—1st, What they call the incubation or invasion of the aphthæ, marked by fever, restlessness, sickness, burning heat of the epigastrium, hoarseness, and hot, tender state of the mouth. 2d, The pullulation or eruption. The membrane of the mouth becomes red, the aphthæ appear, and spread, with cough, difficult deglutition, diarrhœa, &c. 3d, The symptoms increase. 4th, The aphthæ change into crusts, and fall off in fragments. They deny that the eruption is ever attended with mitigation of the constitutional affection.

abdominal symptoms may increase, so that the child is exhausted, and dies.

There are two sources of danger, in bad cases of aphthæ: the first proceeds from the disorder of the alimentary canal, which always attends the disease; and the second arises from the particular state of the system, connected with the local disease, as in malignant sore throat, and many other diseases. It behooves us then, in forming our judgment, to attend to the sensibility of the stomach and bowels, and pay attention to the egesta. Frequent vomiting, repeated thin stools with griping, and a tender state of the abdomen, with or without tumour, are very unfavourable; drowsiness, oppressed breathing, moaning, spasms, and great languor, with frequent pulse, are likewise dangerous symptoms. With regard to the local disease we find, that if the spots be few and distinct, and become a little yellow, and then in three or four days fall off, leaving the part below clean and moist, we may expect that the eruption will not be renewed, or will become still more mild. But if the aphthæ turn brown or black,* which last is not a common colour, the prospect is not so good, and is worse in proportion to the rapidity with which they change. The longer that the aphthæ adhere, the more apt are they to become brown; and the case is worse, than when one crop succeeds another more speedily. If the succeeding crop be more sparing than the former, we augur well, and *vice versa*. When the aphthæ fall off, we expect their renewal, if the parts below are parched and look foul. If, however, in this state, the eruption do not take place, and the oppression, weakness, and drowsiness continue, the danger of the case is increased; and in such circumstances, it has been observed, if the eruption afterwards appear, the child is relieved. It is also unfavourable, if a new eruption come out before the former one be thrown off. When the aphthæ fall off, the mouth becomes very tender, so that the mildest fluids sometimes give pain. Occasionally a salivation takes place, and the inside of the cheek bleeds. Dr. Armstrong remarks, that he has seen the tongue

* Sometimes mortification takes place, and even the palate bones have been known to suffer.

covered with a crust of aphthæ, and the cheeks and gums full of angry pustules, and little fungous excrescences.

Now with regard to the causes, we find that this disease is produced by derangement of the stomach and bowels, excited by improper diet, exposure to cold, &c. and sometimes slight attacks are occasioned by giving spoon-meat too warm. The tongue and mouth sympathize very much with the state of the alimentary canal, in every period of life; but in early infancy, the changes produced in the membrane lining the mouth, by derangement of the function of digestion, are great and sudden. Whenever the diet is deficient, or improper, or the action of the stomach is impaired, aphthæ are produced, especially during the first month; afterwards, at least, when the infant is considerably older, the tongue merely becomes foul or furred, when the digestion is injured. It is rather with the stomach than the bowels that the mouth at first sympathizes; but the bowels also are generally affected, either from a propagation of diseased action from the stomach to them, or from the operation of causes directly on them, as well as on the stomach. Hence the stools are generally bad, when the mouth is aphthous, and hence a change of diet, or medicines, which stimulate and invigorate the whole tract of the canal, and remove the affection of the mouth. If a child be brought up on the spoon, or the milk be bad, one of the most early indications of injury is the appearance of aphthæ, or white exudations on the tongue. Some particular states of the atmosphere would seem either to excite this disease, or predispose to it, for it is most frequent in damp situations, and in spring and autumn; and Van Swieten tells us, that it is peculiarly prevalent in Holland. It would appear also to be produced by sucking an excoriated nipple; and on the other hand, an aphthous mouth may infect the nurse. It has been said by Dr. Moss, that a healthy child, sucking a breast immediately after a diseased child, receives the infection; and I believe it to be the case.

In the treatment of aphthæ, the cause is often overlooked, and local applications are expected to remove the disease. The first object, however, is to remove the cause, which most frequently is resident in the stomach and bowels. For this purpose, strict

attention ought to be paid to the ingesta, for many nurses, instead of bringing the child up at first entirely, or almost entirely on the breast, give spoon-meat, and that in too great quantity, and not unfrequently combined with an anodyne, to keep the child quiet. Emetics have been strongly recommended by Arneman and others, in this disease. A little of the vinum ipecacuanhæ may be employed, which is preferable to antimony. This may be given early in the disease if it require interference with active medicines, or do not yield to mild laxatives ; but if relief be not soon obtained, it should not be repeated : and on the whole, I am not very partial to the use of emetics. Gentle laxatives are highly proper, such as manna, cassia fistularis, or a little magnesia ; indeed, Dr. Underwood seems to trust chiefly to absorbents. A small proportion of rhubarb may, together with an aromatic, be occasionally added to the magnesia. Small doses of calomel may be given with advantage. The remedy I chiefly recommend is laxatives, such as rhubarb, magnesia, or calomel, given so as to evacuate all offensive matter, and excite the action of the whole canal. The operation is to be gentle, but must perhaps be repeated for some days. Emollient clysters, made pretty large, and without stimulating ingredients, are likewise useful. Milk or soup may also be injected, to support the strength, when the child does not suck or take food by the mouth. If, however, the child have a purging, then we must proceed according to the directions which will be given respecting diarrhœa. In the worst species, we must very early give a gentle laxative, or a mild emetic, if the child be much oppressed ; and afterwards the bowels must be regulated, and medicine given according to the appearance of the fæces, and the state of sensibility. Nourishment is to be given carefully, or if the child cannot suck, clysters must be administered twice a-day. Where the debility is considerable, the strength must be supported by cordials, such as white-wine posset. Bark has been recommended when the debility is great, and especially when the mouth has a sloughy gangrenous appearance, or tendency thereto. Children, however, cannot take it so as to do good ; and therefore, when it is employed, it should be in the form of clyster mixed

with starch* or mucilage, but I cannot speak decidedly as to its benefit. Small doses of calomel, with opiates, are useful.

Local applications have been always employed, and in slight cases are trusted to by the nurse, without any internal medicine. The most common remedy is borax, in the form of a saturated solution in water, or mixed with honey or syrup; or a little of the powder may be put into the mouth, and it seems to have a better effect than could be expected from its sensible properties. It cannot, however, as Dr. Bisset observes, be expected to remove the aphthæ until they are about to separate, when it ought to be employed, and may prevent a renewal. Until this period, a little veal soup, or white of egg beat up with water, may be given. Van Swieten recommends syrup of turnips. Applications which force off the aphthæ prematurely, do harm to the part, and seem to produce a renewal of the exudation. A solution of the sulphate of zinc, or diluted muriatic acid have been proposed as lotions, and may occasionally be of service; but it is highly improper to wash the mouth roughly with a cloth dipped in these or any other lotions.

§ 27. APHTHÆ ON THE TONSILS.

Aphthæ sometimes appear on the tonsils of children and adults, with or without fever; and from an apprehension of the existence of a malignant sore throat, give much alarm. There is, however, very little inflammation, and no lividity of the parts; the fever is very moderate, the strength not impaired, and the aphthæ do not spread, but, becoming brown, presently fall off. This is cured by acid gargles and laxatives. Another kind of sore throat is attended with the usual symptoms of inflammation, accompanied with an exudation of tough yellow mucus. It yields readily to the same treatment.

* From a scruple to a drachm of bark may be given to a young child, mixed with half an ounce of fluid. Sometimes a little laudanum may be added to the clyster, to make it be retained.

§ 28. MALIGNANT, APHTHOUS OR PUTRID SORE THROAT.

A malignant and highly infectious species of aphthæ, is one of the most formidable diseases to which children are liable. It constitutes the putrid sore throat, which is quite different from the scarlatina maligna, in as much as there is no efflorescence, but rather a deadly paleness of the surface; unless in those cases where purpura or vibices appear. The child becomes first of all, and rather suddenly, sick, listless, and cold; his pulse is quick and feeble; his eye heavy, and his countenance pale. The throat is seldom complained of, but if inspected is of a deep red colour, and ash-coloured vesications are visible on the tonsils. Even at this time, the breath has a bad smell. Soon the skin becomes hot, and, perhaps, for a short time, the cheeks are flushed, but they soon become either pale or livid, and the heat is never ardent. The pulse is extremely frequent and very feeble. The throat is covered with a slough, and filled with viscid phlegm. The tongue is brown or dry and livid. The nostrils discharge acrid ichor. There is fœtor of the breath, hoarse cough, and stridulous breathing as in croup. In every bad case this affection of the larynx takes place, and few, if any, recover, who are thus seized, for it runs the same course as croup; there is the same hoarse cough, the same sonorous breathing, the same fits of suffocation. These symptoms increase, the stools are dark and offensive, the breath putrid, the sloughs spread, the pulse becomes fluttering, and often within forty-eight hours, sometimes in twenty-four, the child dies. Death, however, rather takes place thus speedily, from the intensity of the laryngeal affection, than from the mere debility consequent to the operation of the infectious virus. Various remedies have been tried. Emetics, purgatives, the early application of leeches to the throat, blisters, and calomel, have all failed. Some of them have perhaps aggravated, none of them have relieved the symptoms; nor do I know any plan which can be depended on with the least confidence after the croupy symptoms have decidedly appeared. If these have not taken place, or are only slightly threatened, the practice I have found most useful, consists

in the administration of gentle purgatives, and the instant use of bark by the mouth, or in clysters, with such nourishment and cordials as the child can swallow or retain; as auxiliaries, we may endeavour to have the throat and mouth cleared by washing, attend to ventilation, and shifting the bed linen, and give ripe fruit. In desperate cases, would tracheotomy be of any avail?

§ 29. EXCORIATION OF THE TONGUE, &c.

About the time of dentition, the tongue, gums, and inside of the lips, are sometimes spotted over with superficial excoriations. They are seldom larger than a coriander seed, of an irregular shape, and covered with yellow or brownish mucus, adhering so firmly, and being so thin, as to resemble the solid base of the sore itself. They are tender, and generally accompanied with salivation. They are cured by being touched with alumen ustum, or lightly with a pencil, dipped in weak solution of nitrate of silver. Borax also, or tincture of myrrh, seem to do good. But perhaps these would always heal easily, if left to follow their own course.

§ 30. SYPHILIS.

Infants may be affected with syphilis in different ways. They may be diseased in utero, in consequence of the state of one or both of the parents. They may be infected by passing through the vagina, when the mother has chancres; or by sucking a woman who has the nipple affected. Of all these methods, the first is the most frequent; and it is worthy of remark, that this mode of infection may take place, when neither of the parents has at the time any venereal swelling or ulceration, and perhaps many years after a cure has been apparently effected. I do not pretend to explain here the theory of syphilis, but content myself with relating well established facts.

In such cases, it is very common for the mother to miscarry, or have a premature labour, without any evident cause; and when this takes place, the child is found to have the epidermis wrinkled, or peeled off, as if it had been macerated, and sometimes deeper

ulcerations are discovered. The liquor amnii is turbid and fœtid. We are not, however, to suppose, in every instance, where these appearances are met with, that the child is syphilitic; for any cause, producing the death of the fœtus, a considerable time antecedent to its expulsion, will produce nearly the same appearance. The diagnosis then, must depend much upon the repetition of the premature labour, the circumstances attending it, the history of the parents, and the distinct appearance of ulceration. In such cases, the parent originally affected ought to undergo a mercurial course; and if the other parent have any suspicious symptoms, mercury should be administered to both. Sometimes the disease seems to wear itself out, without any remedies being employed; and the children born in future are healthy. But it often happens, that the child, though it have received the venereal disease in utero, and probably possessed it as a peculiarity of constitution from the time of conception, is born alive, and has even no apparent disease on the skin, or in the mouth. Frequently, indeed, it is born before the time, and perhaps it has been preceded by one or two dead children. It may be clean and healthy, and continue so for even a month or two, but oftener it is feeble, and rather emaciated; and sometimes it has at the time of birth, or soon afterwards acquires, a wrinkled countenance, having the appearance of old age in miniature, so very remarkably, that no one who has ever seen such a child can possibly forget the look of the *petit vieillard*. In such a case, the child has scarcely any hair upon the head, but may have pretty long hairs on the body; it cries in a low murmuring tone, and appears so weak, that it cannot suck for a minute at a time. But whether the child be apparently healthy or emaciated at the time of birth, other symptoms presently appear;* and of these the most frequent and earliest is generally an inflammation of the eyes, accompanied with ulceration of the tarsi, and purulent discharge. This appears a few days af-

* M. Mahon, from his observations in l'Hospice de Vaugirard, says, that the symptoms appear as follows, the most frequent being put first. Ophthalmy; purulent spots; ulcerations; tumours; chancres on the mouth, and aphthæ; livid, ulcerating, and scabbing pustules; chancres on the genitals, and about the anus; excrescences; peeling off of the nails of the feet and hands.

ter birth. The eye presently, if neglected, becomes ulcerated, and the cornea opaque. Copper-coloured blotches, ending in ulceration, appear on the surface; or numerous, livid, flat, suppurating pustules, cover the surface; or many clusters of livid papulæ appear, which presently have the top depressed, and then end in ulceration. These papulæ are sometimes attended by an eruption of pale shining pimples on the face, which enlarge, become red, and often run together. Children have sometimes an eruption of leprous or scaly spots, which I have formerly described, and which resemble syphilis. The syphilitic blotches are of a darker colour, are more apt to end in ulceration than in scurf, or to form crusts or scabs, and seldom disappear without the use of mercury; or if they do, they soon return, and become worse by continuance, and presently are combined with additional symptoms of the disease.

The genitals and anus* become ulcerated, and sometimes excrescences sprout out from these parts. Foul sores, having retorted edges, and a centre pale and like lard, cover the inside of the mouth; and chancrous ulceration takes place on the lips, especially about the angle of the mouth. These sores and chops are often surrounded pretty extensively with a whiteness of the skin, as if the part had been scalded, or recently rubbed with lunar caustic, and perhaps, from this circumstance, these sores have been called, though improperly, aphthæ. They may, however, be combined with aphthæ. In some cases, the white or dusky patches cover the whole palate and inside of the cheeks, whilst the gums are

* Children may have ulceration about the anus, genitals, and groins, succeeding intertrigo, owing to neglect of cleanliness, without any venereal affection. But the absence of other symptoms, particularly of sore throat, or ulcer of the mouth, and the amendment experienced by the use of lotions, and keeping the parts dry and clean, will enable the practitioner to form a diagnosis, and the aspect of the sores will assist him. This fretting of the parts, and even some degree of excrescence may attend psoriasis, and the leprous spots of children formerly described, and in this case, especially if the child belong to a poor person, the disease is too often decided to be syphilis. There is, however, perhaps no individual symptom, which can decidedly characterize syphilis in children; and the diagnosis must be formed by the combination of symptoms, and often by the progress of the disease. Many children are rashly put upon a course of mercury who do not require it: perhaps, because the practitioner thinks it a point of honour, to determine the nature of the disease at the first glance.

ulcerated, or even nearly gangrenous. The ulceration of the gums has always a very angry look. The nostrils become stuffed, and discharge purulent matter. On the face and hands we see obstinate sores covered with pus, others with crusts, whilst the intervening skin is sallow. The child early becomes hoarse, and the glands of the neck, with those below the jaw, are often swelled. Children, like adults, have in general the surface affected, and then the tonsils and mouth, but sometimes the one follows the other quickly. They seldom live long enough to have the bones diseased. They are always in great danger, and those who are much diseased never recover. Mahon, with great justice, ranks among incurable symptoms, the old decrepid visage, great destruction of the globe of the eye, chancres on the middle of the lip, spreading to the frænum, and extensive ulceration of the mouth. It must be remembered, that syphilis not only may appear under its own peculiar characters, but may also exist under the form of some of the eruptions common to children; such as crusta lactea, lepra, psoriasis, &c. These are known to be venereal, by their being of a more livid colour than usual; they tend slowly to ulceration, and when the scab or crust with which they are furnished comes off, a foul honey-comb like ulceration is observed below. But the best diagnostic is, that they are soon attended with other symptoms, such as hoarseness, ulceration of the mouth and throat, &c. We must take up our judgment slowly, and with deliberation.

When a child is infected during delivery, the disease appears more promptly on the surface, in the form of ulcers; and the usual train of symptoms follow, the mouth and genitals becoming presently affected. The disease generally appears within a fortnight after delivery, sometimes so early as on the fourth day.

If the child receive the infection from the nurse, we discover ulcers on her nipples, and the disease appears on the child's mouth, before the surface of the body be affected.

It has been proposed to cure this disease by giving mercury to the nurse alone, but this mode is now abandoned, mercury being given directly to the child; and it ought to be remembered, that this medicine produces less violent effects on the bowels in children, than in adults, and scarcely ever excites a salivation. But if given

too long or too liberally, it may kill the child by its irritation, or may excite convulsions. Calomel is very often employed, and with great benefit, a quarter or half a grain being given three times a day. Others advise frictions, which are equally useful. Fifteen grains of mercurial ointment are rubbed on the thighs alternately once in two days, until the mouth be found hot, when it is intermitted or continued, according to the state of the system, and the effect on the disease; it must be used till the disease be removed. It has been remarked, that children apparently cured when on the breast, have had a relapse after being weaned. If the child be griped, a gentle purge, and then an opiate, will give relief. Some have used the ung. acid. nitros. in place of the mercurial ointment, but it is not to be depended on. It is, however, useful as an auxiliary, when applied to the affected part of the surface. It often happens, that after all appearances are removed, the disease returns some weeks or months afterwards. It is, therefore, necessary to continue the medicine for some time after an apparent cure.

Sometimes, in consequence of the use of mercury, a peculiar eruption, called the eczema mercuriale, takes place. This generally begins on the lower extremities, and spreads to the body. It consists of very small vesicles, which at first are like papulæ. Each vesicle may with a glass be seen to be surrounded with redness; and if they are not disturbed, they acquire the size of pins' heads, then their contents become opaque. They are attended with heat and itching, and a general tumefaction of the part affected. Presently, even if not scratched, the vesicles burst, discharging thin acrid fluid, which stiffens the linen, and sometimes excoriates the part. When the discharge ceases, the cuticle becomes of a pale brown colour, and then blacker; and separating in pretty large flakes, leaves the skin below of a bright red colour. After this, the skin comes off in scales or scurfs, perhaps two or three times. The disease ceases of itself, sometimes within ten days; often, however, it is protracted longer. Those parts which are first affected, are first cured. Relief may be obtained, by applying saturnine lotions, or weak saturnine ointment.*(h)*

(h) Vide Alley on Hydrargyria, and Mathias on the Mercurial Disease, also

§ 31. SKIN-BOUND.

The disease termed skin-bound, is not distinctly mentioned till 1718, when a case was published by Uzembozius; since then many accounts have appeared. It may be divided into the acute and chronic, the last being chiefly met with in private practice. The acute species generally appears soon after birth, and proves fatal in the course of a few days. The best description of this disease is given by Dr. Underwood, and by M. Andry, as it appeared in the hospitals of London and Paris. In London, the children were seized at no regular period; but it was observed, that, whenever the disease appeared, several children were attacked within a short time, and especially those in the last stage of bowel complaints, in which the stools were of a clayey consistence, and of which the induration of the skin appeared to be only a sequel. The skin was of a yellowish white colour, like wax, and it felt hard and resisting to the touch, but not œdematous. It was so fixed to the subjacent flesh, that it would not slide, nor could it be pinched up. This state was found to extend over the body, but the skin was peculiarly rigid about the face and extremities. The child was always cold, did not cry, but made a moaning noise, and had constantly the appearance of dying immediately. In the French hospitals, the disease differed, in being more frequently attended with spasm, or tetanus, and always with erysipelas, especially about the pubis, which, though purple, was very cold. These erysipelatous parts rarely suppurated, but sometimes mortified. The legs were œdematous, and the children died on the third or fourth day, or at farthest, on the seventh day from birth. This disease differs, then, principally from that observed in this country, in being combined with erysipelas and tetanus, which are by no means essential symptoms; and perhaps the erysipelas of children has sometimes been mistaken for the disease called skin-bound.

In private practice, the disease appears under a more chronic though not less dangerous form. The children affected, are gen-

Spens on Erythema Mercuriale in Edin. Med. and Surg. Journal, Vol. I. and M'Mullin's in same work, Vol. II.

erally delicate; and in such cases as I have seen, the skin from birth, was not so pliable as it generally is, being most rigid about the mouth, which had more of the orbicular shape than usual. The skin gradually becomes tight, hard, and shining, and of a colour a little inclined to yellow. In some cases, the whole skin is thus affected; in others, chiefly that about the jaws, neck, and joints. The scalp is often bald and shining, and the veins of the head peculiarly large and distinct. In some instances, parts of the skin are rough and slightly leprous. The appetite, at first, is not greatly impaired, and the bowels are sometimes uniformly regular. Presently the child becomes dull and listless, and moans, and gradually sinks, or is carried off by fits. The complaint lasts for several weeks. In some cases, the disease is less severe, the appearance of the child being healthy, and the thickening and rigidity of the skin confined to the joints of the extremities.* No light is thrown on the nature of this complaint by dissection, which simply discovers a deficiency of oil in the cellular substance, with induration. In the acute species, the liver has been found enlarged, and the gall bladder distended. Camper says, there is always, or at least very frequently, a little hard tubercle found in the cheek, under the malar bone. Sometimes more children than one in the same family have been affected; and in such cases, they have been always of the same sex. A variety of remedies have been made use of, such as mercury, laxatives, aromatic baths, and emollient frictions; but seldom with any advantage. Gardien advises vinegar, having gum ammoniac dissolved in it, to be poured on hot bricks, and the vapour applied to the indurated part. When there is stupor or determination to the head or lungs, a blister applied on the indurated part has been proposed, but I have no evidence

* Adults are sometimes seized with this disease. A very remarkable case of this kind is recorded in the 48th vol. of the Phil. Trans.—The subject of it was a girl, aged 17 years. She had excessive tension and hardness of the skin, all over the body, so that she could hardly move. The skin felt like a dry hide or piece of wood, but she had some sensation when pressed with the nail or a pin. It was cold and dry, the pulse was deep and obscure, but the digestion good. It began in the neck, then affected the face and forehead, and at last she could scarcely open her mouth.

of its utility; others have, as a remedy for the induration, advised blisters to be applied to distant parts, with a view of producing counter-irritation. A gentle course of calomel has appeared to do good, when the affection is confined to the extremities. Decoction of sarsaparilla, with the frequent use of the warm bath, decoction of mezerion, and a variety of diaphoretics may be tried; and in cases where more children than one, in the same family, have been affected with the chronic species of this disease, it might be worth while to try the effects of mercury, and some other medicines, on the parents.

§ 32. SMALL-POX.

The small-pox begins with a febrile attack, which commences generally about mid-day. It is marked by chilliness, listlessness, pain in the back and loins, drowsiness, vomiting, pain in the region of the stomach, which is increased by pressure, starting, and coldness of the extremities. As the fever advances, the pulse becomes more frequent, the skin hotter, the face flushed, the eyes tender, and the thirst considerable. The child starts, grinds his teeth, or has one or more eclamptic fits, or sometimes complains of severe cramp in the legs, or lies in a kind of comatose state. On the evening of the third, or morning of the fourth day, an eruption appears on the face, and then on the neck, from which it spreads to the body. In mild cases, the eruption is completed by the evening of the fourth, but sometimes not till the fifth day, or even later, if the pustules be very numerous; and then the fever declines, or goes off altogether. The eruption consists, at first, of small hard red pustules of a fiery appearance. On the second day, the top is clear, and a very small vesicle is observed to be forming. On the face, we frequently find patches like measles, but containing many minute vesicles. Next day, if the eruption is to be copious, the number of pustules is farther increased, especially on the face, where we often find more patches. These patches and the succeeding confluent vesicles, seldom appear in the inoculated small-pox, or in the natural small-pox, when very distinct. They are numerous, in proportion to the tendency to the confluent form of

the disease. The pustules on the body are more raised and rounder, though in some places they are flatter, and more extended. The base is surrounded with an inflamed rim; and presently, if the eruption be copious, this inflammation spreads from one pustule to another, so that all the surface appears to be red. The cuticle of the vesicle, at this time, is somewhat opaque, but its contents are limpid, like water. On the fourth day, if there be any patches on the face, they are evidently covered with flat confluent vesicles; on the body and arms the vesicles are larger and rounder than the day before. The surrounding redness is a little paler, the skin of the vesicle is whiter, and more of the pearl appearance; so that at the first glance, the eruption seems to consist of white elevations. The vesicles are full and smooth. On the fifth day, they are rather flatter. On the sixth day, the skin of the vesicles on the body and extremities, is drier and harder, and the contents still limpid; all those on the body are entire, but about the chin some have broken, and crusts are formed. If there have been patches on the face, these are now covered with flat vesications. On the seventh day, the vesicles on the body and extremities are of a dead white colour at the circumference, but more glossy, like candied sugar, at the centre. Their contents are a little turbid; more crusts are formed on the face. On the eighth day, the fluid on the extremities is whitish. On the ninth day, the crusts on the face are more numerous, and they begin to be formed about the bend of the arm, &c. The pustules on the extremities are whiter, as if filled with pus, but the fluid is thin and milky; the skin of the vesicles is thick. On the tenth day, the pustules on the face are covered with scabs, and many are formed on the extremities. On the breast, the vesicles are prominent, like two-thirds of a sphere, but compressed, and have no redness around them. Many vesicles are empty and covered with thin brown skin. Scabs are formed, by the skin becoming dry, hard, and brown, or sloughing. The contained fluid is partly absorbed, and partly effused by exudation, so as to add a crust to the slough of the vesicle.

When the scabs are picked off, about the seventeenth day, the base of the mark is in general elevated above the rest of the skin, but the centre is depressed a little below the margin. The colour

is light red. On the twentieth day, the blanes on the body and extremities are smooth, flat, or slightly scurfy, so that they somewhat resemble leprous spots.

The process is not always regular; for, in very mild cases, the suppuration is indistinct, and the scab thin; the pustule dries without forming much matter, so that inoculators can scarcely get their lancet wet. This is a favourable condition. Sometimes the matter, though considerable in quantity, does not exude to form a scab, but is absorbed, and the vesicle remains for a time entire, forming what has been called variola siliquosa.

About the seventh or eighth day of the disease, when the pustules are numerous, the face swells; but about the tenth or eleventh, it subsides, and then the hands and feet swell. It is also common, about the sixth or seventh day, for the throat to become sore, with sneezing, and some degree of hoarseness or cough; and, in unfavourable cases, the secretion about the throat becomes tough and thick.

When the pustules are numerous, a return of the fever may be expected about the eleventh day. This is called the secondary fever; but in mild cases it is very trifling, and does not last long.

Such is a general history of the distinct small-pox: but the disease may also appear under a different form, known under the name of the confluent small-pox. In this case, the eruptive fever is more severe, attended with greater pain in the loins, and often with coma. It differs also from the former, which is of the inflammatory kind, in being of the typhoid type, so that sometimes petechiæ appear. The eruption comes out earlier, generally on the morning of the third day, and is sometimes preceded by erythematic inflammation of the face or neck. The eruption is copious, and at first, more like measles than small-pox, so that some practitioners have, at this stage, mistaken the one disease for the other. The pustules, which are not so much elevated as the variola discreta, become confluent, especially on the face; and though they may be confluent only on the face, yet those on the body are not of a good kind. They form matter earlier, do not retain the circular form, and, instead of having the interstices of the skin, where they do not coalesce, of a red colour, as in mild

small-pox, these spaces are pale and flaccid. The coalescence is most remarkable on the face, which often seems as if covered with one extensive vesicle. The matter which these pustules form is not thick and yellow, like good pus, but either of a whitish brown, or black colour. Scabs generally form about the eleventh day of the disease, but these do not fall off for a length of time, and leave deep pits. The swelling of the face is greater and more permanent than in the former species, and the eruptive fever does not go off when the eruption is completed; it only diminishes a little, till the sixth or seventh day, when it increases, and often proves fatal on the eleventh.

The treatment of the distinct is different from that of the confluent small-pox. During the eruptive fever, the antiphlogistic regimen must be carefully enjoined, the diet must be light and sparing, the surface kept cool and clean, and the bowels loose. Emetics, at an early stage of the fever, are often serviceable, and it is generally proper to give laxatives. Eclamptic fits are relieved by opiates and cool air. When the eruption is coming out, the cool regimen should still be persisted in, and the bowels kept open. After the pustules have appeared, the fever generally abates; and then, although heat should be avoided, the cooling and purging plan need not be carried so far as formerly. But if the fever still continue, these means should be also continued. The diet must be sparing, and plenty of ripe fruit should be given. If secondary fever supervene, it is to be removed, chiefly by laxatives and cool air: or if there be oppression at the stomach, a gentle emetic may be given.

In the confluent kind, during the eruptive fever, the cold plan should be diligently employed, and cathartics are of essential benefit. When the eruption appears, the cooling regimen should still be persisted in, and both vegetable and mineral acids ought to be given freely. Bark is also proper, provided that it is not productive of sickness or vomiting. When the fever is aggravated, at the height of the disease, emetics have been sometimes given with advantage; but in general they are not necessary, and more benefit is derived from laxatives and clysters. Opiates are useful, for abating irritation; and wine, with nourishing diet, should be

prudently given, to support the strength, which is apt to be completely exhausted under the constant fever and irritation. On this account also, it is necessary to restrain diarrhœa, when it is frequent, and adds to the weakness. Blisters have been advised as stimulants, but they are only useful when deep seated inflammation exists. Sometimes the brain seems to be affected, the head being pained, the eyes impatient of light, and the patient delirious. In this case, leeches may be applied to the temples, and a blister put on the head. When the lungs are affected, blisters on the sides or breast do good. When the stomach is very irritable, if saline draughts and opiates do not give relief, a small blister should be applied over the the stomach. If the swelling of the face subside quickly, and be not followed by tumefaction of the feet and hands, blisters have been applied to the wrists, but sinapisms are better, though it is not decided, that either are of great utility. When the throat is much affected, and filled with viscid phlegm, gargles are of use, and sometimes a very gentle emetic gives relief.

If the eruption suddenly subsides, cordials tend to bring back a salutary inflammation; or if it altogether recede, the tepid bath, with ammonia, and other internal stimulants, will be proper. The boils and inflamed pustules, succeeding variola, are very troublesome, and sometimes prove fatal. When large, suppuration should be hastened with a poultice; when small, unguentum resinosum may be applied; or if they be indolent, gentle friction, with camphorated liniment, and bathing with laudanum, is of benefit. The strength must be supported, and, as soon as possible, sea-bathing should be resorted to.

The violence of the variolous disease is generally lessened by inoculation,* which was first introduced into this country in the year 1721. The operation itself is very simple, consisting merely in abrading the skin on the arm or leg with the point of a lancet, and then applying on the small scratch a little of the variolous matter,

* Inoculation, even after exposure to infection, is capable of producing a mild disease.

which should be taken early, as when it is delayed until the pustules are collapsing or scabbing, it sometimes produces a spurious inflammation. By the third day, we are sure of success, by observing a slight redness on the arm at the incision. On the third or fourth day, the part is hard to the touch. The redness gradually increases for the two succeeding days, and then a small vesicle may be perceived. By the eighth, or at farthest the tenth day, the pustule has completely the variolous character. It forms a circular elevation, surrounded with circumscribed redness, and the vesicle is a little flatted on the top. The constitution, at this time becomes affected; and the earlier that the eruptive fever appears, the milder in general is the disease. The character of the succeeding disease may, it is supposed, be foreseen, even before the eruption take place, or be completed, by examining the arm; but this is doubtful.

The safety of the practice of inoculation is greatly increased, by having the system as free as possible from every diseased state; and, therefore, children are not inoculated during dentition, at least if they cut their teeth with any trouble. Very young children are not considered as favourable subjects, Dr. Fordyce observing that two-thirds of those who died from inoculated small-pox were under nine months. If we have our choice, the best age is said to be from two to four years, but it is dangerous to wait so long, lest the child should take the casual small-pox; and Dr. Adams informs us, that of three thousand children inoculated at the hospital in one year, two thousand five hundred were under two years of age, yet only two out of that number died. Full plethoric children should be frequently purged, and fed sparingly, before the operation. Some particular modes of preparation have been often employed, such as giving calomel or antimony, but these have very little effect.(i) The attention ought chiefly to be directed to bring the body into a state of good health, if previously delicate, or diseased: and, on the other hand, if requisite,

(i) In so far as they operate as laxatives, their effects occasionally must be beneficial, and children are more easily induced to take them, as they are not so nauseous as some other cathartics.

diminishing plethora and inflammatory disposition by the obvious means. After the inoculation, the bowels must be kept open, and all stimulants avoided; and when the eruptive fever commences, the antiphlogistic regimen is to be strictly practised, and often has so good an effect, that few or no pustules come out; or if they do, they do not maturate, and we have no secondary fever. In general, the arm heals kindly; but when it forms a sore, it should be exposed to the air, or dusted with chalk; or if it threaten gangrene, it should be bathed with camphorated spirits, or tincture of myrrh.

§ 33. COW-POX.

As a preventive of the small-pox, the vaccine inoculation is now universally practised. This is productive, in general, of a very mild and safe disease, consisting of a single vesicle, forming on the place where the inoculation was performed. On the third day, the scratch is slightly red, and, if pressed with the finger, feels hard. Next day, the red point is a little increased, and somewhat radiated. On the fifth day, a small vesicle appears, but it is still more easily seen on the sixth. This gradually increases, until it acquire the size of a split pea. The colour of the vesicle is dull white, like a pearl. Its shape is circular, or slightly oval, when the inoculation has been made with a lengthened scratch, acquiring about the tenth day a diameter equal to about the third or fourth part of an inch. Till the end of the eighth day, the surface is uneven, being depressed in the centre; but on the ninth day it becomes flat, or sometimes rather higher at the middle than at the edges. The margins are turgid and rounded, projecting a little over at the base of the vesicle. The vesicle is not simple, but cellular, and contains a clear limpid fluid, like the purest water. On the eighth or ninth day, the vesicle is surrounded with an areola of an intense red colour, which is hard and tumid. About this time, an erythematic efflorescence sometimes takes place near the areola, and spreads gradually to a considerable part of the body. It consists of patches, slightly elevated, and is attended with febrile symptoms. On the eleventh or twelfth day, as the areola decreases, the surface

of the vesicle becomes brown at the centre, and is not so clear at the margin; the cuticle gives way, and there is formed a glossy hard scab, of a reddish brown colour, which is not detached, in general, till the twentieth day. When it falls off, we find a cicatrix, about half an inch in diamater, and with as many pits as there were cells in the vesicle. During the progress of the vesicle, there is often some disorder of the constitution; and occasionally, a papulous eruption, like strophulus, appears near the vesicle.

As security against the small-pox is not procured by spurious vaccine vesicles, it becomes necessary to study carefully the character of the genuine disease, which I have briefly described. A very frequent species of spurious cow-pox, is rather a pustule than a vesicle. It increases rapidly, instead of gradually. From the second to the fifth or sixth day, it is raised toward the centre, and is placed on a hard inflamed base, surrounded with diffused redness. It contains opaque fluid, and is usually broken by the end of the sixth day, when an irregular yellowish brown scab is formed. If the vesicle be regular in its progress, and have pretty much of the general aspect of the vaccine vesicle, but contains, on or before the ninth day, a turbid or purulent matter, it cannot be depended on; and the security will be still less, if the scab be soft. Besides these, Dr. Willan has characterized three spurious vesicles. First, A single pearl-coloured vesicle, less than the genuine kind; the top is flattened, but the margins are not rounded nor prominent. It is set on a hard red base, slightly elevated, with an areola of a dark rose colour. The second is cellular, like the genuine vesicle, but somewhat smaller, and with a sharp angulated edge. The areola is sometimes of a pale red colour, and very extensive. It appears on the seventh or eighth day after inoculation, and continues more or less vivid for three days; during which, the scab is completely formed. This is less regular than the genuine scab, and falls off sooner. The third is a vesicle without an areola. These forms of the disease do not give security against the small-pox; and it would appear that a vesicle, which is even regular at first, or which runs through the whole course with regularity, may fail to secure the constitution; for there are well authenticated cases, where the small-pox has thus

succeeded the cow-pox. Professed writers on this subject, have enumerated three causes of failure. 1st. From matter having been taken from a spurious vesicle, or from a genuine vesicle at too late a period. The best time for taking matter is about the eighth day; and after the twelfth,*(k)* or when it becomes purulent, it cannot be depended on; or the same effect will be produced by any cause which can disturb the progress of the vesicle. 2d. From the patient being seized, soon after vaccination, with some contagious fever, such as measles, scarlatina, influenza, or typhus. 3d. From his being affected, at the time of inoculation, with some chronic cutaneous disease, such as tinea, lepra, &c. The precise circumstances under which these causes produce their effect, or the degree to which they must be present in order

(k) It has been satisfactorily determined by the experience of the physicians of this city, that the genuine Vaccine scab, after the usual process of separation from the arm, will, when properly used, communicate the real Vaccine disease.

This valuable fact was first brought before the medical public in the year 1802, by James Bryce, of Edinburgh, surgeon to the Vaccine Institution of that place. The student is also referred to a paper on this subject, with directions for the proper mode of using the scab, or crust, by Dr. Samuel Powel Griffitts, Eclectic Repertory, Vol. I. p. 362. Dr. G. has used with success, a scab, which he had possessed for eleven months. As it appears to be a matter of importance to the young practitioner to understand this subject well, we shall take the liberty of subjoining from the paper above alluded to, the most essential circumstances to be observed in the use of the scab in vaccinating.

"The most perfect vesicles which go on to the state of crust, or scab, without any deviation from the proper character, and which when they fall off are somewhat transparent, smooth, of a mahogany colour, and rather brittle than tenacious in their texture, are to be chosen to propagate the infection. It should be the first scab that falls off; this should be wrapped up in a piece of white paper, and kept in a cool dry place. When used, the margin, which is of a lighter colour, should be removed with a knife, and a portion of the remaining dark, hard internal part is to be shaved off, reduced to powder on a piece of glass, and moistened with a small quantity of cold water, mixing it well together, and then introducing it in the arm on the point of a lancet, leaving also a small portion of the scab on the scratched part. No more of the scab must be moistened at one time, than what is used, and no greater portion should be shaved off from the scab, than what is wanted for the present occasion, as it appears to retain its strength better by continuing in the undetached state. It is believed that the livid vesicle, and especially the unopened one, is most powerful."

to operate, have not yet been determined with certainty. It has also been supposed, that puncturing the vesicle in order to take matter from it, may, by disordering the process, sometimes prevent its efficacy.

Even where none of these causes exist, and when the vesicle runs its course with distinctness, it does, though very seldom, happen that the constitution is not rendered insusceptible of the variolous action. It were much to be wished, that some test could be discovered, by which the security could be determined. The constitution is often manifestly disordered during some part of the vaccine progress, and such children are most probably secure; but sometimes the disorder is too slight to be discovered, and therefore this sign is not to be relied on. We are also assured, that even when no constitutional disorder has taken place, the child is secured. Other means, then, have been resorted to, in order to discover if the system be affected, so as to have a complete change induced by the inoculation. These are two in number: 1st, If a second inoculation be performed on the fifth or sixth day after the first, a vesicle will arise as usual, but it will be surrounded with an areola nearly as early as the first one. 2d, If a second inoculation be performed any time after the twelfth day after the first inoculation, some degree of inflammation will be induced; but if the system have been affected, no regular vesicle will be produced. But the most satisfactory method is, to inoculate with small-pox matter, which produces a small pustule, generally totally unattended with constitutional affection; but sometimes, even although the constitution have been changed by the vaccine inoculation, a slight febrile affection may be excited, either without any secondary pustules, or attended by an efflorescence on the skin, or an eruption of small hard pustules, which disappear in about three days. It unfortunately happens, however, that parents in general do not think it necessary to adopt any of these means; and inoculators, perhaps, trust too much to their own power of discrimination, in determining how far a vesicle is capable of producing the desired effect. Some test is the more requisite, as vaccination is often performed in a very careless manner, and by people ignorant of the character of the disease.

It has been said, that if a child, properly vaccinated, should afterwards take the small-pox, the pustules are papulous, or tuberculated, and do not suppurate, but end in desquamation. I have, however, known very distinct cases of suppurating small-pox, in those who, some years before, had gone through the vaccine process in the most satisfactory manner. Few facts, I believe, are now better ascertained in our "ars conjecturalis" than that small-pox may take place after vaccination; and I believe that the proportion will increase as we recede from the date of vaccination, and augment the activity of the infection. Many will escape, who are merely exposed to the casual company of those who have small-pox, who would take the disease if inoculated with virus. This much, at least, I know, that a great majority of those whom I have inoculated, have taken a mild small-pox. The eruption has been more papular than if vaccination had not preceded, and has only vesicated and dried like chicken-pox. In other cases, the principal part of the eruption has been efflorescent like measles. But all who were formerly conversant with small-pox, know, that children inoculated and properly treated, often had scarcely any eruption, and that not coming to suppuration. Those, again, who take small-pox from exposure to contagion, have the disease more severely; the pustules maturate, and leave for a time distinct blanes. Variola occurring after vaccination is contagious, and produces the same disease in those who are not vaccinated, as any other small-pox would have done. Some seem to think, that by changing the name they can change also the disease, and have called this, not variola, but a varioloid disease. It must either be small-pox, or it must be something else. If it be not then small-pox, virus can produce a new disease. We are told it does so, and long ago it was maintained, that chicken-pox was merely a modification of variola! The substitution of the term varioloid, is indeed a very good way of getting rid of the fact, that small-pox may occur after vaccination; but it is not an original idea, for Falstaff fell on the same expedient with regard to stealing, "call it conveying Hal." I do not, from these remarks, mean to depreciate the cow-pox; on the contrary, it is only by ascertaining the precise power of

vaccination, that its full benefit can be derived to mankind: and although the warmest friends of this discovery must admit, that it is not always successful, yet it has hitherto failed in so small a proportion of cases, that we must consider it as justifiable to rely upon it, and adopt it, in preference to the variolous inoculation.(*l*) Experiments have been made to ascertain the effects of inoculation with a mixture of variolous and vaccine matter; and the result has been, that sometimes the cow-pox, sometimes the small-pox has been thus produced. When a person is inoculated with variolous and vaccine matter at the same time, the incisions being very near each other, the vesicles enlarging, join into one; and matter, taken from the one side, will produce cow-pox, from the other small-pox. When a person is inoculated with the two kinds of matter at the same time, or within a week of each other, both diseases will be communicated to the patient, whether the incisions be near or remote, and small-pox pustules will be produced on the body; but they seldom maturate, and the disease is generally mild. When, however, the variolous inoculation is performed more than a week, as, for instance, nine days before vaccination, the vaccine pustule becomes purulent, and sometimes communicates the small-pox even in a very bad form. When, on the other hand, variolous matter is introduced nine days after vaccination, its action is altogether prevented. From these observations, it follows, as an important conclusion, that when a child has been exposed to small-pox contagion, vaccination, though it may not prevent, will yet generally mitigate the subsequent disease.

(*l*) Numerous cases have of late years been undeniably adduced, of the variolous virus producing its full effects twice in the same system, so that a similar objection will apply to variolous inoculation as to vaccination, as it regards the after security of the patient. It might perhaps be considered as superfluous to refer to particular instances in proof of this position; but the curious reader may find a very interesting case of this kind, related by E. Withers, surgeon, in the Memoirs of the Medical Society of London, Vol. IV. The patient's face was severely pitted with the first attack, and he died nearly 50 years afterwards in consequence of the second. See also a case of secondary small-pox, with references to some cases of a similar nature, by T. Bateman, M. D. F. L. S. Physician to the public Dispensary, and to the Fever Institution. Medico Chirurgical Transactions, Vol. II. p. 31. and seq.

It only remains to take notice of two objections to vaccination. The first is, that it is apt to be followed by a very sore arm. This, however, applies in a greater degree to small-pox; and in general, the vaccine sore heals, by being dusted with chalk or hair powder; and even when tedious, seldom requires any other application. The second is, that it is followed by cutaneous diseases. But these occur seldomer, than when the variolous inoculation was performed; for then inflamed pustules and boils, with leprous and impetiginous eruptions, frequently succeeded the disease. Doubtless, children, after vaccination, may have crusta lactea, lepra, &c. but it does not thence follow, that these are the consequences of inoculation; and it is not unworthy of remark, that no new cutaneous disease has been produced by the introduction of the cow-pox.*(m)*

§ 34. CHICKEN-POX.

The chicken-pox is a disease sometimes mistaken for small-pox; and at one time, and by some authors, described along with it. It is preceded by eruptive fever, which continues for three days,

(m) The following note is extracted from the Eclectic Repertory for July 1813. The interesting nature of the information it contains, it is presumed, precludes the necessity of apologizing for introducing it here.

"The following important statement, from the annual official Reports of the Board of Health of Philadelphia, with the accounts of persons vaccinated by the society for promoting vaccination, must be peculiarly interesting and conclusive in respect to the benefits of this invaluable discovery. By the Reports of the Board of Health, it appears, that there have died of inoculated and natural small-pox, in the city of Philadelphia and its neighbourhood,

In 1807	32 persons	
1808	145	
1809	101	
1810	140	
1811	117	
1812	None	
In 1809	1102	Persons were successfully vaccinated by the Physicians of the Society for promoting vaccination in the city and neighbourhood of Philadelphia.
1810	955	
1811	1277	
1812	1255	
Total	4589	

and is marked by langour, loss of appetite, thirst, furred tongue, pain in the head, back, and limbs, sometimes pain in the epigastric region, with nausea and vomiting. The pulse is quick, the face occasionally flushed, and cough and hoarseness may attend the disease. Convulsions also, in some cases, occur during the fever, or the child has tremours when asleep, accompanied with terrifying dreams, or he is slightly delirious. The eruptive fever does not always go off when the eruption appears, but may continue even till the third day of the eruption. In general, however, the symptoms are mild, and sometimes exceedingly trifling. The eruption commences on the back, or breast, and next appears on the face and head, which is not the order observed by the variolous eruption. Last of all, it appears on the extremities. The pustules very soon contain lymph, and by the fifth day are covered with scabs or crusts, which is earlier than happens in the variolæ. These drop off sooner than in small-pox, and very seldom leave any cicatrix. The eruption is attended with very considerable itching, in consequence of which the pustules are soon broken. The pustules are seldom or never confluent, and Dr. Heberden never could count more than twelve upon the face, but we sometimes meet with many more.

In varicella, almost every vesicle, on the first day, has a hard inflamed margin. On the second or third, they are full of serum at the top; and those which are fullest of the yellow liquor, resemble small-pox pustules of the fifth or sixth day. On the third or fourth day, the shrivelled and wrinkled state of the vesicles which remain entire, give a different appearance from the variolæ; and on the fifth day, the presence of scab assists the diagnosis. It is proper, however, to add, that in some cases, I have found the pustules longer than usual of running their course, and the disease altogether so like small-pox, that I would have been at a loss to decide on the nature of the disease, had not the rest of the children in the family had the chicken-pox at the same time in the usual form.

Such is the general description of this disease; but it consists of some varieties, which have very properly been separately described by Dr. Willan, whose distinctions I shall retain. 1st, The len-

ticular. The eruption consists, on the first day, of small red protuberances, not exactly circular, with a flat shining surface, in the middle of which, a minute vesicle is soon formed These, on the second day, resemble miliary vesicles, are about the tenth part of an inch in diameter, and are filled with whitish lymph. On the third day, the extent is the same, but the fluid is straw-coloured. Next day, many of the vesicles are broken; and those which are not, have shrunk, and are puckered at their margin. Few are entire on the fifth day. On the sixth day, small thin brown scabs appear universally, in place of the vesicle. On the seventh and eighth days these turn yellow and dry, from the circumference toward the centre; and on the ninth or tenth day, drop off, leaving red marks without pitting. 2d, The conoidal. The vesicles rise suddenly, and have a hard inflamed border. On the first day, they are acuminated, and contain a bright transparent lymph. Next day, they are more turgid, the lymph is straw-coloured, and they are surrounded with more extensive inflammation. On the third day, the vesicles have shrivelled, have inflammation round them; if entire, contain purulent matter, if they have burst, they are covered with slight gummy scabs. The scabs fall off in from four to five days, and often leave durable pits. A fresh crop of pustules come out on the second or third day, and runs the same course with the first; so that the eruptive stage in this species is six days, and the last formed scabs are not separated till the eleventh or twelfth day. 3d, The swine or bleb-pox. The vesicles are large and globated, but the base is not exactly circular. They are surrounded with inflammation, and contain transparent lymph, which on the second day resembles whey. On the third day, they subside and shrivel, and appear yellowish, the fluid being mixed with a little pus. Before the end of the fourth day, they are covered with thin blackish scabs, which fall off in four or five days.

The chicken-pox is a very mild disease, and requires no other management than keeping the bowels open, and the surface moderately cool. The skin may be spunged with cold water, which diminishes the heat, and lessens the number of pustules, if done during the eruptive fever; at a later period it abates the itching. I have, especially in scrofulous children, observed, that if the

bowels were neglected by the parents, and the diet was full and heavy, the pustules became much inflamed, and ended in sloughs, which left large and permanent cicatrices; and in some cases, boils and abscesses have occurred from the same cause.

§ 35. URTICARIA.

Urticaria, or nettle rash, may appear either as an acute or chronic disease.* The first is most frequent with infants and children. It is preceded by languor, sickness, and fever, on the third day of which, but sometimes earlier, an itchy eruption appears, bearing a very exact resemblance to that produced by the stinging of nettles. It consists of irregular patches, slightly elevated above the surface. These are of a dull white colour at the centre, and red towards the margins, which are sometimes hard and well defined. The size and shape of the patches are very various. Generally they are about the size of a penny-piece, but sometimes form pretty long stripes. This eruption is, in some cases, attended by a slight turgescence of the skin, but especially of the face and eyelids. The patches do not remain constantly out, but appear and disappear irregularly during the disease, which lasts for seven or eight days, including the period of the eruptive fever. When the eruption declines, the languor, stomachic symptoms, and feverishness go off. The disease terminates by slight exfoliation of the skin. In infancy and childhood, it is often dependent on dentition, or affections of the bowels; and from the itching which attends it, great distress is produced. The febrile urticaria is not infectious, but in certain seasons it is very prevalent; and the same holds true with regard to the chronic species. Chronic urticaria is more rare in infancy. It differs from the former, chiefly in being destitute of fever, and vexing the patient at intervals for a length of time; sometimes even for years. The patches seldom continue out, however, for above a few hours at a time. They are, like the former, reproduced readily by exposure to cold, and are also particularly troublesome after undressing to go to bed. A tempo-

* Dr. Willan notices five different species of this disease; but for the present purpose, this simple division is sufficient.

rary eruption of this kind, without fever, is often consequent to eating particular kinds of fish, or substances which disagree with the stomach. An eruption somewhat resembling urticaria, is described by Dr. Willan, under the name of roseola annulata; it differs in size, and some other circumstances, whilst it agrees in others. It consists of circular patches, about half an inch in diameter, the margins rose-coloured, the centre of the usual colour of the skin. These cover the body, and produce, especially at night, a sensation of heat and itching. When unattended with fever, the eruption fades in the morning, and becomes round and elevated at night. The use of acids and sea-bathing will be of service.

A gentle emetic, followed by one or two purges, gives relief in acute urticaria. The child should, if possible, be kept from scratching, so as to tear the skin; and this will be the easier done, if he be preserved in a uniform temperature. The tepid bath sometimes gives relief. The chronic species is more obstinate, and in consequence of the abrasion of the skin, from frequent scratching, it has sometimes been treated as itch, but without advantage. The bowels are to be kept open by cream of tartar, and some tonic medicine should be administered. The tepid bath daily will also be proper, but sometimes, sea-bathing continued for some months succeeds better. Mercurials have been tried with very little good effect.

§ 36. SCARLATINA.

Scarlatina may appear under two different forms. In the first, it is accompanied with inflammatory fever, and is generally mild, in the second, it is connected with a typhoid fever, and is very malignant. The first species admits of a farther subdivision, according to the degree of mildness; one variety being attended with slough or ulceration of the throat; another, still milder, with little or no affection of the fauces. This has by some been called scarlatina simplex, to distinguish it from the first, or scarlatina anginosa.

The scarlatina simplex begins with a febrile attack, attended with considerable debility, chilliness, nausea, and pain in the belly

and about the loins and extremities. It generally attacks very suddenly in the afternoon or evening, the patient having been, not an hour before, lively, and apparently in good health. The pulse is extremely rapid, being often 140 in the minute; the trunk is very warm, and the feet cold; the respiration frequent, irregular and sometimes sonorous; the eye dull, and the eye-lids turgid and red on the inside. Sometimes, but not often, convulsions occur early, and are to be considered as unfavourable. On the next day, if not earlier, an eruption appears, first on the face and neck, and very soon, always within twenty-four hours, it is diffused over the whole body. It consists of numerous minute specks, so closely set together, that the skin appears altogether of a red colour, like a boiled lobster, and it feels rough. Broad patches also appear on those parts which are most exposed to heat or pressure. The inside of the eye-lids, nostrils, cheeks, and fauces, are of a deep red colour, and the tongue participates in the appearance. The eruption is most vivid at night, and especially on the evening of the third or fourth day. On the fifth day it declines, and is wholly gone by the seventh, when desquamation takes place. During the eruptive stage, the patient is generally either restless, or very drowsy, often slightly delirious, and both during this stage, and the process of desquamation, complains much of itchiness. Whilst the fever lasts, the skin is extremely hot. The contagion, in general, operates on the third or fourth day after the person has been exposed to it.

The scarlatina anginosa is attended with more severe symptoms. It commences with the usual symptoms of fever; and in general, whenever these appear, or even before the fever commence, the throat will be found, on inspection, to be affected; but sometimes the cynanche does not take place till the eruption come out, which is nearly about the same period as in the former species. Dr. Sims says, that the first marks of disease are paleness and dejection of coutenance, and that at this time the fauces will be found to be red. I am very much inclined to adopt the same opinion. From the first, there is a sensation of stiffness about the muscles of the jaw and neck; and very soon, generally on the second day, the throat feels as if straitened, the voice becoming hoarse, and

sometimes a croupy cough takes place. In this case, the breathing often becomes sonorous, or even so obstructed that the child is suffocated, as in cynanche trachealis. In very many cases, deglutition is performed with difficulty, and sometimes the drink returns by the nose. On examining the mouth we find at the first, that the tongue has a very red colour, and its papillæ are evidently elongated. In the progress of the disease, it is often covered with a fur. The tonsils are early observed to be of a deep red colour, and very soon whitish streaks may be discovered. Superficial ulceration is frequent on the second or third days, and the parts become covered with a white or ash-coloured substance, or slough, whilst the rest of the tonsil becomes of a dark red colour. The sloughs are sometimes not removed for a week or more, but often are detached on the fifth or sixth day, when the cuticular eruption declines. The inside of the nostrils is inflamed, and sometimes ulcerated. The lips, likewise, become tender and itchy, and owing to the child picking at them, they, as well as the gums, are apt to be covered with black patches, chiefly from effusion of blood. The eruption, in this variety, is the same in appearance and duration as in the former. When it is slight, or disappears suddenly, it has been said that the event is hazardous, but this is not always the case. The fever is attended often with great nausea, bilious vomiting, restlessness, headach, and delirium. The heat is excessive, the pulse feeble, and sometimes fluttering, always very rapid. The languor and inquietude are great, especially when the sloughs are forming. About a week or ten days after the eruption fades, anasarcous swelling of the legs may take place, and continue even for two or three weeks. Sometimes other parts of the body swell, or the patient has ascites.

Scarlatina is sometimes succeeded by pain in the ear, followed by temporary deafness, and the discharge of fœtid serous fluid. This often abates, upon syringing the ear with decoction of camomile for a few days; but it may be more obstinate, and the child remain permanently deaf. The tonsils occasionally suppurate, after the external disease abates. Swelling of the parotid gland is not uncommon; and it is said by various authors, when it is late of appearing, to protract or renew the symptoms, even the erup-

tion itself; but this I have not witnessed. Sometimes the glands of the neck swell and suppurate, or the bones of the nose, after obstinate ulceration, become carious. I have seen some unfortunate cases, where the lips have sloughed completely away, and these ended fatally. Even after the patient has, to all appearance, recovered from scarlatina, there sometimes unexpectedly supervene languor, debility, and pain of the bowels, frequent pulse, and loss of appetite, which symptoms terminate in dropsy. Bronchitis or pneumonic affections may also be produced. In some cases the patient becomes languid without fever or dropsy, but these generally do well.

In the second species, or scarlatina maligna, the pulse is very small and feeble, sometimes indistinct. The debility is very great, the patient fainting on making the smallest exertion, and very generally he is unable to sit up in bed. In the scarlatina benigna, the tongue is red, the eyes and eyelids red, the throat at first red, and the skin like a boiled lobster; but in this species, the tongue is livid, tender, and soon covered, together with the teeth and lips, with a brown or black crust, the eyes are dull, and the inside of the eyelids dark-coloured, the cheeks are livid, the throat of a dark red colour, with brown or blackish sloughs; there is very fœtid breath, with much acrid discharge from the nostrils. The inside of the labia pudendi of girls, and of the prepuce of boys, has in scarlatina the same colour with the inside of the cheeks and lips; in the scarlatina maligna, the vulva and lips are of a dark colour, and sometimes mortify. The eruption is sometimes faint, in other cases very dark and purple-coloured, and often appears and disappears irregularly. In the progress of this disease, delirium, great fretfulness, or coma may come on. The breathing is rattling, the neck seems to be full, and of a livid colour, and the head is bent back. This disease sometimes proves fatal in a few hours. It is not, however, always alike mortal, for there are several smaller degrees of malignity, forming a gradation betwixt this and the scarlatina anginosa.

The first species, when properly managed, is not very dangerous, but the last is attended with great hazard. The prognosis must be made, by attending to the symptoms of debility, the progress of

the affection of the throat, the tendency to inflammation of the trachea, and the general character of the epidemic.

Drs. Withering, Adams, and Willan, believe, that the scarlatina does not attack the same person twice, though the throat may be to a certain degree repeatedly affected. Although I have had many opportunities of attending to this disease, I cannot form a decided opinion on this important point; but I am inclined to adopt the same conclusion. Aphthous affections of the throat, and exudation of lymph from inflammation, are often considered as belonging to scarlet fever, though the eruption be absent, but the conclusion is incorrect. Those who are exposed to the contagion of scarlatina, may have sloughs in the throat, attended with considerable debility, but a regular repetition of the scarlet fever is certainly not a frequent occurrence. Sometimes other eruptive diseases, such as roseola infantilis have been taken for it.

The scarlatina simplex and anginosa, are often so mild diseases, as to require little medicine, but still great attention is necessary. When there is a considerable appearance of inflammation, venesection has been recommended; but this is very seldom necessary, often hurtful, and may almost uniformly be superseded by other means. In adults or children, however, who have a determination to the head, marked by severe headach, or feeling of weight, accompanied with much fever, the instant use of the lancet has been attended with immediate and permanent relief. Emetics, given early, are sometimes attended with advantage, and supposed to render the subsequent disease milder. But of the truth of this opinion, I have not been able to satisfy myself. Laxatives are still more useful, and in mild cases are the only medicines which are required. In some epidemics, the bowels are moved with greater difficulty than in others, and in those cases the laxative must be stronger. Even when there is a tendency to diarrhœa, if the stools be fœtid and unnatural in their appearance, purgatives are equally necessary as in the opposite state. The best medicine to be given at first, is calomel in a brisk dose, which often, even at the commencement of the disease, brings away fœtid stools. This medicine cannot be used too early; and if an emetic have been given, calomel ought rapidly to succeed it. After the operation of the first dose

of calomel the bowels must be kept open, or even rather loose, by the daily use of infusion of senna with an aromatic. This is better than repeated small doses of calomel, which often affect the mouth considerably. But if the stools be very fœtid, the patient oppressed, and the belly full, a brisk purgative may be given oftener than once in the course of the disease. Another remedy of great importance, is affusion with cold water. From careful observation, and repeated trials, I can with confidence recommend this remedy, which by no means prevents the exhibition of purgatives at the same time. It is of consequence to use this early, and whenever the patient feels steadily hot, the shivering having gone off, and the skin feels very warm to the hand of another person, it is time to put him into an empty tub, and dash over him a large pail-full of cold water. By this I have known the disease arrested at once, the eruption never becoming vivid, and the strength and appetite in a few hours returning. Even where it is not arrested, it is pleasant to observe the change it produces. The patient, from being dull, languid, and listless, feels brisk, and disposed to talk or laugh; the skin becomes for a time colder, and refreshing sleep is frequently procured. The repetition must depend on the degree of heat: one application is sometimes sufficient, but it often is necessary the first day to use it three times, and next day once in the morning, and again in the evening. It is seldom requisite afterwards; for although the disease may continue, it is mild, and laxatives complete the cure. If the affusion be not employed, we ought to have the surface cooled frequently with a sponge dipped in cold water. Even an advanced state of the disease, if the bath have not been previously employed and the skin is hot, does not preclude its use, though at this period, it is generally better to employ the sponge. On the contrary, it revives the patient. The use of cold is generally beneficial when it is not succeeded by chilliness or langour; in such cases it must be abandoned. These two remedies do not only mitigate the disease, but lessen the risk of dropsical swelling taking place afterwards.* Gargles are often useful,

* Dr. Hieglitz recommends in scarlatina, first an emetic of ipecacuanha, and then so much Epsom salts as shall procure four stools. In bad cases he gives

when they can be employed. Water, acidulated pretty sharply with muriatic acid, or mixed with capsicum vinegar, forms a very good gargle. Acid fruits are proper. The diet should be light and nourishing. In mild cases, it is not necessary to give wine; but if the debility be considerable, small doses of wine may, toward the end of the disease, be administered. Should anasarca take place, laxatives and diuretics, such as digitalis, are proper.

The scarlatina maligna is much more dangerous, and requires the most vigorous practice. The early use of cold water is highly proper, and often gives a favourable turn to the future disease. Laxatives are likewise necessary, and so far from weakening the patient, if prudently administered, seem to increase his strength. Wine should be given, in such doses as do not flush the patient, or make him hotter. Ammonia is sometimes of benefit. Two drachms should be dissolved in six ounces of water, and the solution sweetened with sugar. To infants, two tea-spoonfuls, and to elder children, from a desert to a table-spoonful of this solution, may be given every two hours, or oftener if possible. An infusion of capsicum in vinegar is also employed with advantage; so much of it is to be added to a given quantity of water, as renders it pungent. This mixture may be given in the same doses as the solution of ammonia, and it both acts as a general stimulant and as a local application to the throat. Bark has certainly, in many cases, been of service; but in general, children do not take it in such doses as to do much good; or they loath it, or reject it by vomiting. Even when taken freely, it is not a medicine that can be depended on, in the cynanche maligna of children, but at present I know of nothing better to propose. When it is prescribed, it may be combined with ammonia or capsicum. But in general it is better to give it in clysters made of beef tea without salt. Myrrh has also been given, combined with vinegar; but of the effect of this, I cannot speak from my own observation. Oxygenated muriatic acid, in doses of twelve drops to children, has been employed; but I question if it produce better effects than water acidulat-

four grains of calomel daily, or rubs in ℥ss of ung. byd. Whenever the salivary glands become affected, the disease, he says, takes a turn.

ed with sulphuric acid, which, if the ammonia be not employed, makes a very proper drink. If the patient, at an advanced period, be restless, and the skin dry and rough, ablution with tepid water will be useful. As gargles, capsicum vinegar with water, or muriatic or nitrous acid with honey and water, may be employed; but as children often cannot, or will not use gargles, their utility must be limited. They might be thrown on the tonsils with a syringe, but are apt to go into the wind-pipe if they get so far back as the fauces. It is also proper to touch the sloughs and tonsils frequently, with a pencil dipped in the tincture of myrrh or camphorated spirit of wine. Fumigations, made by pouring sulphuric acid on nitre, placed in a vessel in the bed-room, have also a good effect on the throat. When the sloughs are large, or the child breathes with difficulty, or has a croupy cough, gentle emetics have been proposed. On this subject, I must refer to what I have said already, (sect. 28,) respecting laryngeal disease, occurring in putrid sore throat. Blisters have also been applied to the throat, but I really cannot say decidedly, that they do good, and they add greatly to the irritation of the child. In bad cases, there is risk of their being followed by mortification of the part. Sometimes, in the course of this disease, apoplexy succeeded by hemiphlegia, and inability to articulate distinctly, takes place. Blisters should be applied to the head, and if the patient survive, the paralytic symptoms go off in a few weeks.

During the course of the disease, the strength must be supported by nourishment, or if that cannot be swallowed, by nutritive clysters.

When a disease of this kind appears in a family, the children who are unaffected, ought, if possible to be sent away, and should not return for a month. In the mean time, the clothes should be washed, and the apartment well ventilated, and fumigated with the vapour of oxygenated muriatic acid. This fumigation may be employed, even during this disease, for the destruction of the contagion, and of the smelling matter in the room.

§ 37. MEASLES.

Measles commence with a distinct eruptive fever; on the first and second days of which, the patient complains of irregular shiverings, alternating with heat, general debility, languor, loss of appetite; has white tongue, thirst, pain in the back and limbs, slight sore throat, hoarseness, with dry cough and sneezing, weight and pain across the forehead, giddiness, drowsiness, sometimes convulsions, frequent and irregular pulse, costiveness, and high-coloured urine. On the third or fourth day, the symptoms become more severe; the eyes are tender, watery, and appear as if inflamed, the eye-lids are often swelled, the nostrils discharge thin serum, and the patient sneezes more frequently. There is now often some degree of dyspnœa, and sometimes pain and tightness in the chest. These febrile symptoms usually come on distinctly, about twelve or fourteen days after exposure to infection; but I have known children seized more gradually, being teazed with hard cough, and rendered more irritable and fretful for many days before the eruptive fever commenced. The eruption appears betwixt the third and sixth day of the fever, but most frequently on the fourth, and it remains for about three days. It is first visible on the forehead, then on the throat, then on the face. Next day it appears on the breast, and by the evening it covers the trunk and extremities. The eruption consists at first of small red spots, apparently a little raised, like papulæ, but without vesicular tops. Then the spots extend so far as to form an oval or irregular figure, slightly elevated, but flat, resembling a flea-bite. Very soon large patches appear, intermixed with the distinct spots. These are irregular in shape, but tend to the semilunar figure; they are made up of clusters of distinct spots. In some cases, the eruption, though vivid, is not considerable; and in this case, it consists almost equally of patches and circular and irregular spots, and the intervening skin is of the natural appearance. When the eruption is more copious, the patches are most numerous and extensive. In children under a year old, the eruption is not so thick and confluent as in older subjects, and in many places has a papulous appearance, especially

on the face and hands. In some cases, the eruption, though of the usual configuration, is pale and indistinct; but in general, whether vivid or not, when the finger is passed over the surface, the skin feels unequal, from the elevation of the spots and patches. The colour is most vivid after the eruption has been out for a day. Sometimes the eruption suddenly and prematurely recedes, or never comes fully out. Both of these cases are unfavourable, the fever is high, and the oppression great. In the regular course of things, the eruption on the face fades a little on the sixth day, and next day that on the body becomes also paler.* From this to the ninth day, the eruption is going off, and then the former situation of the rash is only marked by a slight discoloration. The departure of the effiorescence is attended with desquamation, during which the patient complains much of itchiness. The fauces in this disease, about the fourth day, are covered with small red patches, which next day have a scattered or streaked appearance. The inflammation of the eyes, sneezing, and hoarseness, generally decline with the eruption, and towards the end, epistaxis sometimes takes place. The fever continues during the eruption, but the sickness and nausea abate when the eruption comes out, and about the sixth day the heat and restlessness go off. A spontaneous diarrhœa often terminates the fever, and then the appetite returns pretty keenly. Sometimes, especially if the disease have been severe, the measles are followed either by an eruption of inflamed pustules† over the body, which may ulcerate, and prove troublesome, but more frequently they fade, or by a vesicular herpetic-looking eruption about the mouth, or sometimes by gangrenous affections of the lips or vulva,‡ or by enlargement of the glands of

* Sometimes, instead of this, the eruption becomes very dark-coloured, or purple, with increase of the languor and fever. Mineral acids in this state are useful, and most children recover. The danger is greater when petechiæ appear among the patches, for this marks great debility.

† These are sometimes taken for a kind of small-pox. They are occasionally succeeded by a scabby disease of the skin. The skin is inflamed and covered with rough loose yellow scabs.

‡ The measles, about fifteen years ago, were more prevalent than any practitioner I have met with remembers them to have ever been before. They be-

the neck, or dropsy, or a cough, somewhat resembling that in hooping-cough, or by hectic fever, continuing for many weeks.

Sometimes the sickness and oppression are great and permanent. The child never looks up, but breathes heavily, and, owing to stuffing of the nostrils, loudly. He coughs often, has frequent pulse and hot skin. He can scarcely be roused up, even to take a drink. This state arises more from the brain than the lungs.

In measles, the membranes are very apt to be affected. Generally, the membranes of the wind-pipe, bronchiæ, fauces, nostrils, and eyelids, are chiefly affected, but sometimes that of the stomach or bowels principally suffers, producing sickness, vomiting, or purging. At other times that of the brain is affected, producing coma.

Rubeola, in general, is not a fatal disease, when stimulants are avoided. When it proves fatal, it is most frequently in consequence of the pulmonic affection, sometimes of coma, or fever, and oppression, with symptoms of effusion in the brain connected with recession, or imperfect appearance of the eruption.

The treatment is extremely simple, and may be briefly explained. During the eruptive fever, the use of mild diaphoretics, and the tepid bath, will be of advantage. The bowels should be kept open, but the child should not be much purged after the first day. If there be a considerable diarrhœa from extraneous causes, as dentition, or directly connected with the fever, it is often found that the eruption is late of appearing, and a late eruption is generally attended with some troublesome symptoms, as it indicates a tendency to affection of some internal membrane. A little rhubarb, given early, often moderates this.

If the eruption do not come freely out, or recede prematurely, and the child be sick, oppressed, and breathe high, we must attend first of all to the bowels. If diarrhœa exist, and the child be not plethoric, a little rhubarb should be given, and then spiritus ammoniæ aromaticus with laudanum, and the child should be put

gan about the middle of winter, and continued during the summer and autumn. I had occasion, during that epidemic, to see different instances of the gangrenous affection I have mentioned. The children all belonged to the poor, and lived in confined houses.

in a warm bath, having a little mustard diffused in it; afterwards a sinapism, followed by a warm plaster, should be applied over the stomach, and we determine to the surface by giving a saline julap. If in this state the child be costive, a gentle purgative should be given, for the bowels may be either too torpid or too irritable.

I have not advised the liberal use of purgative medicines, though these are found beneficial in scarlatina, because we often find that diarrhœa interferes with the eruption. But the bowels are upon a general principle to be kept regular, or rather open; and if the stools be fœtid or ill-coloured, then, even although diarrhœa exist, small doses of calomel should be given, and afterwards, if necessary, the purging is to be moderated by anodyne clysters. So far as I have observed, the continuance of the diarrhœa, in this case, does not mitigate the symptoms; and if the child recover, it is either by the use of medicines bringing the bowels into a better action, or it is independent of the mere evacuation produced by the diarrhœa.

If the pneumonic symptoms be considerable, marked by cough, oppressed breathing, flushed cheeks, and pain in the chest, which, in young children, may be discovered by the effect of coughing, and if a slight motion excite coughing, a blister should be applied to the breast, and if the symptoms are urgent, either the lancet must be early used, or leeches may be applied at the top of the sternum, according to the age and constitution of the child, and moderate doses of calomel given to keep the bowels open. If the cough be frequent, without inflammatory symptoms, opiates give great relief. If the symptoms of inflammation be such as to require bleeding, or to render the propriety of using laudanum doubtful, then small doses of solution of tartarite of antimony may be given every two hours, but not to such extent as to produce sickness or vomiting. Diarrhœa should not be checked, unless severe, and it increase debility, or produce hurtful effects. Anodyne clysters are then the best remedies.

Coma or drowsiness very frequently attends the measles, and the child may perhaps scarcely look up for some days. When the nostrils are stuffed with mucus, the breathing, in this case, has

an alarming appearance of stertor. Most children recover from this state; but as some die evidently from this cause, and as we have no means of ascertaining the security of any individual, I hold it expedient to use means for the removal of the coma, particularly by giving a purge, if the child have not a looseness, and shaving the head, and afterwards applying either a sinapism or a blister. When the child is plethoric, it may also be proper to apply leeches to the forehead.

The cough which remains after measles, is generally relieved by opiates. Hectic fever is often removed, by keeping the bowels open, giving an anodyne at bed-time, carrying the child to the country, and adhering to a light diet. Other symptoms are to be treated on general principles.

When the measles are epidemic, it is not uncommon to find those who had formerly the disease, affected sometimes with catarrh* without any eruption, sometimes with an eruption preceded by little or no fever, and without any catarrh. This has been very distinctly observed, during every season when the measles were prevalent. Whether the eruption be of the nature of measles, is not easily determined, but certainly the external resemblance is very great, in so much that this eruption has been called rubeola sine catarrho. It requires no particular treatment, and is only noticed because it is sometimes mistaken for measles, but does not prevent the patient from a second attack.†

* During the epidemic, some years ago, ophthalmia was extremely prevalent amongst young and old.

† Of all the eruptive diseases the measles are undoubtedly the most inflammatory. They therefore require to be treated by depletion. Bleeding, even pretty copiously, can rarely be dispensed with. I speak now of the disease as it appears in this country. To this remedy may also be added occasionally purging with the neutral salts, and the antimonial preparations with a view not less of diminishing arterial action than overcoming the structure on the surface of the body. The whole antiphlogistic plan is indeed to be pursued. If there be much local affection either in the lungs or head, blisters should be employed. Change of air, especially by removal to the country will be found most speedily and certainly to subdue those distressing effects which too often follow the disease, such as diarrhœa, cough, &c. C.

§ 38. ROSEOLA.

Sometimes an eruption, termed by Dr. Willan roseola,* is mistaken for measles.† The first species, roseola æstiva, has no small resemblance to rubeola. It is often preceded by chilliness, alternating with flushes of heat, languor, faintness, restlessness, occasionally with severe headach, delirium, or convulsions. At some period, betwixt the third and seventh day from the commencement of these symptoms, the rash appears, generally first on the face and neck, and afterwards in a day or two over all the body. The patches are larger and more irregular than those of the measles,‡ in which the eruption consists of spots like flea-bites, and patches made up of these spots arranged sometimes in a crescentic form, and of a colour seldom deeper than bright scarlet, often much paler. In this disease, however, the eruption is at first red, but in general it soon assumes a deep roseate hue, from which Dr. Willan gives its name. The fauces are tinged with the same colour, and the patient feels a slight roughness in the throat. The eruption appears first at night, and continues vivid next day, with considerable itching. On the third or fourth day, only slight specks of a dark red colour are observable, which next day disappear, and together with these the internal disorder. In some instances, the skin on many parts becomes of a dusky colour, with an appearance of slight vesication or desquamation. The drowsiness, sneezing, watery eyes, and running at the nose, so common in measles, are wanting in roseola, and there is no pulmonic complaint, whilst at the same time, the patches are larger, and occasionally intermixed on the body with an appearance of net-

* This he defines to be rose-coloured rash, without scales or papulæ, variously figured, and not contagious. By some former writers, this term is applied to a disease resembling nettle-rash. Vide Lory, 398.—The appearance of roseola æstive is extremely well expressed by Dr. Willan in his plate.

† Lichen simplex is also apt to be at first mistaken for measles. From its itchiness, and the effects produced by rubbing or scratching the extremities, it has also been mistaken for itch.

‡ Sometimes young infants have an efflorescence of numerous coalescir patches, of a strong red colour, rounded, and of the size of a sixpence. T terminate in desquamation in less than a week.

tle-rash. Sometimes the rash is only partial, appearing in patches, slightly raised above the surface, with a dark red flush of the cheek. This form lasts about a week, the rash appearing and disappearing occasionally; and usually the disappearing of the rash is attended with nausea, faintness, &c. In some cases, no fever is observable, or the progress and duration of the eruption is more irregular than I have described; and sometimes on the breast or trunk, the eruption has a resemblance to urticaria, whilst on the arm the appearance is like roseola. This disease decidedly is infectious. For, in particular seasons, I have observed it to be unusually frequent, and to affect all the children, and many of the adults in a family. In such cases the eruption has lasted from two to four days, but has been attended with very little fever. The only treatment which is necessary consists in giving gentle laxatives, the use of acids, and light diet. If the eruption be suddenly repelled, the warm bath is proper. Should there be a marked determination to the head, brisk purgatives are proper.

Another species, called roseola autumnalis, affects children generally in the harvest, and consists of distinct patches, of an oval or circular shape, which increase to nearly about the size of a shilling; they are not elevated, but are of a very dark colour, appearing at a distance, as if a black cherry or brambleberry had been pressed on the skin, so as to leave the impression. The patches are not attended with fever, are usually diffused over the arms, and disappear in about a week. Acids may be taken internally.

The roseola infantilis appears during dentition, or in a disordered state of the bowels. It consists of a red efflorescence, usually very closely set, so that the surface is almost entirely of a red colour, as in scarlatina; but there is more appearance of patches than in that disease, and the other symptoms are wanting. The eruption generally goes off in a day, but it sometimes appears and disappears for several days, with symptoms of great irritation. No particular treatment is necessary except what is required on account of concomitant circumstances. It is sometimes preceded or attended by vomiting or convulsions, with pale face and languor. In such cases a gentle emetic, the warm bath, and cordials are proper.

CHAP. V.

*Of Cerebral and Spinal Irritation.**

The action of the brain and spinal marrow, may be affected in different ways. Certain parts of the animal system sympathise with each other in a manner which cannot always be accounted for on the principle of communication of nerves. This sympathy manifests itself variously; but three of the most important modes are, First, Where one part becomes associated with another in action, the former having its action increased or altered by the latter. This sympathy of association may exist between remote parts which come to act similarly, but not always exactly in the same degree or proportion. Second, Where action spreads without interruption, from a part to the neighbourhood, or, perhaps, to a great extent. This I would call communication of action; and it may be salutary, or the contrary, according to circumstances. Third, When one part has its action diminished in consequence of another having an increase, and *vice versa*. This I have called the sympathy of equilibrium. In all of these ways the brain and its appendages may be influenced; but these are not the only modes, and some others seem also to assist those. For instance, the brain considered as the sensorium commune, or origin of the nervous system, may undergo certain changes peculiar to it in that view. A sudden failure in its power or action, by whatever cause or in whatever way it may be produced, must occasion instant debility, or even death itself. A slighter degree, gradually produced, is followed by less striking, but not always less serious changes. A similar degree, suddenly produced, occasions not only debility at the instant, but important secondary effects afterwards. These, which have been attributed to re-action, as it has been called, proceed from the communication of action, already mentioned, whereby the part which is weakened, is not allowed to act

* This Chapter is new, and not to be found in the former editions of this Work.

in that degree which is proportioned to its vigour; but has more excited in it than it can properly perform; and the same consequence is produced as if a positive and direct stimulus had been applied to it. This is illustrated by bruises and the effects of cold, inflammation attacking frost-bitten parts, not only from the improper application of heat, but also from the communication of action from their vicinity. Hence one object, in such cases, is to prevent communication of action, by endeavouring to moderate that of the neighbourhood, or even of the system, at the same time that we avoid the operation of stimuli on the part itself. It is also illustrated by concussion of the brain, where, in the stage of re-action, as it has been called, venesection is required to cure the disease which is excited. A similar state is produced in those who, having been long exposed to hunger and cold, have heat suddenly applied to the body, and warm soup speedily given, or cordials administered. Such excitement of the brain thereby is produced as requires depletion and great care.

Another mode of affecting the action of the brain is, by the direct operation of stimuli, both mental and corporeal, on it. In the latter case, it is similar to any other viscus. The heat of the sun, especially if the person be stooping, a current of cold air blowing on the head, &c., may thus excite disorder.

Injurious effects may also be produced by irritating the extremities of important nerves, whereby the origins of these nerves are not only affected, but also the parts in the vicinity of these origins, and the nerves which come off there are irritated, or the whole encephalon may, more or less, and in varying degrees, be affected. This is exemplified by the effects of irritation of the nerves of the jaw in dentition, or of the intescostal and par vagum in abdominal affections. These are two of the most important nerves of the body, and are intimately connected with the basis of the brain, and spinal marrow, and also with one another, both anatomically and in function. The 8th pair of nerves, so important to the stomach and thoracic viscera, arises from the very base of the brain, from the medulla oblongata, and corpora olivaria. It communicates with the intercostal and cervical nerves, and its recurrent, as well as the laryngeal nerve it gives off above, have a most impor-

tant influence on the larynx. Near its origin we have the 5th, 6th, 7th, and 9th pair of nerves, given off. The intercostal does not arise itself from any particular part of the brain, although so important as to be called the great sympathetic nerve. It originates from filaments from the 5th and 6th pair, and in its progress forms ganglia, and communicates, by means of twigs, with the 8th, and 9th, and cervical nerves. At each intercostal space, it receives addition from the dorsal nerves. Whilst it is important to the thoracic viscera, and, along with the 8th pair, supplies the stomach, it also goes on to all the intestines and abdominal viscera, so that they cannot be affected without influencing this nerve.

The effects produced on the brain, or its appendages, by these causes, may, perhaps, be referred to the following heads. 1st, A moderate degree of excitement, or irritation, producing a febrile state, with or without spasmodic affections, or distant pain, or uneasy sensations. 2d, Pain referred to the head, or spasms and pain in other parts, without fever, or extreme sensibility of some organ of sense, with susceptibility of mental emotion. 3d, A higher degree of irritation, inducing inflammation. 4th, A loss of vigour or action in part of the brain, or its appendages, producing a corresponding injury in the parts dependent thereon, such as weakness, anæsthesia, palsy, &c. This has too often been attributed to pressure; but pressure only produces this state, which may exist without it, as we see in simple concussion, or some diseases to be soon noticed. 5th, Apoplexy. 6th, As secondary consequences of some of these states, we may have suppuration, serous effusion, torpor, or extreme susceptibility, change of structure, occasioning, in its turn, new symptoms.

The visible consequences of cerebral or spinal irritation are so various, that it is not only impossible to class them, but also difficult to believe that they arise from the same source. They vary, not only in kind, but likewise in intensity and danger. All that I can propose here, then, is only to give a short sketch of some of the effects produced, without attempting methodical arrangement. We are very much in the dark, with regard to the effect of intestinal action and irritation. Some suffer nothing, others almost continually, from this cause. It appears that there is a kind of sym-

pathy of equilibrium, between the stomach and intestines, the action gradually descending along different portions, so that when the duodenum is active, the stomach is less so. Few, therefore, can eat constantly, and digest what they eat, unless the nerves be in a particular state, as we see in some patients who have certain varieties of insanity. In some cases, the different portions of the canal act irregularly, or inordinately, or become torpid, in consequence of which, the functions of the stomach and liver are disordered; and, on a former occasion, I have said, that in many instances where the stomach was supposed to be primarily, it is only secondarily affected. Improper action of the stomach or bowels, may not only operate on the extremities of the nerves of the portion in fault, but also, by sympathy, on other parts of the canal, and their nerves; a very frequent, though seldom a dangerous effect of this, is headach, which varies in its seat, sensation and severity, according to the part of the bowels affected. Intense thinking, anxiety, or reading long, give headach, and in that case the stomach is affected, the food, if recently taken, becoming acid. Abstinence, for a longer period than usual, also causes headach; acid in the stomach does not uniformly occasion, but always aggravates it; so does bile. The most frequent cause of headach, accompanied with anorexia, or sickness, is irritation of the intestines, by acid, undigested food, inefficient doses of laxatives, or whatever can produce partial or slowly progressive excitement, or irritation of the bowels. An opposite state, or degree of torpor in part of the canal, may do the same. The upper portions of the small intestines, but especially the duodenum, are the most important in the present view. They have more action to perform than the lower parts, and the duodenum, in particular, is to be considered as a second stomach, and not only intimately connected with the first in function, but also in nerves which communicate directly with the brain, and not through the medium of ganglia. When affections of the inferior tract produce headach, I believe it is by sympathetic action on the duodenum and stomach. If the colon be briskly excited by glysters or medicines, it often happens, that by sympathy the stomach, or duodenum in its vicinity, are affected, and the person is sick or vomits, when he is going to have a stool; or in in-

fants, a convulsive fit often takes place at the time. Severe griping in the lower part of the ileum has the same sympathetic effect whilst it produces faintness. A moderate degree of griping generally relieves sickness and headach. Laxatives rather add to the evil, till they get low, and produce this effect; relief is then obtained, if the irritation have not been too great. Griping is also salutary when it is moderate, and affects the colon, particularly at its sigmoid flexure.* It is not always there, however, when relief is obtained by the discharge of flatus, for this may produce a sympathetic effect on the ileum, and give relief. Griping is quite different from spasmodic pain, which in children often produces eclampsia, probably through the medium of the stomach or duodenum. In female adults, again, spasm of the duodenum often affects the brain, and in its turn is perhaps renewed by such affection. Severe pain referred to the stomach, often alternates with insensibility, intense headach, spasmodic affection of the throat, or eclampsia. This is peculiarly apt to happen at, or immediately after the menstrual period. It is relieved by blood-letting, glysters, and laxatives, followed by an opiate, combined with asafœtida. If coma or carus occur, a blister to the back of the head, and leeches to the temples, are to be superadded.

The eclampsia of infants might very properly be noticed here, but I shall refer its consideration for a separate chapter. The same is the case with spasmodic croup,† and chorea.

Cough is another affection of a spasmodic nature which cannot be noticed here. In some cases, in young females, I have known almost incessant cough continue for weeks during the day, and resist both laxatives, antispasmodics, and opiates. When there is no

* Griping is attended with relief, not only as it arises from excitement of the bowels, but from the mere sensation. Many are relieved, for a time, from both headach and sickness, by transient and shifting pain in the side, bowels, arms, &c. When affections of the stomach, or duodenum, produce a sensation of stricture or pain across the chest, there may be flatulence, but rarely either headach or sickness.

† The disease termed spasmodic asthma, is of this nature; the accumulation of phlegm, the flatulence, the frequent pulse, and difficult respiration, all coming on rapidly, and going off as speedily, the respiration remaining unaffected, in the intervals, depend on an affection chiefly of the eighth pair of nerves; and whatever irritates or disorders the stomach, is sure to bring on an attack.

other apparent cause, it may be suspected to arise from some affection of the cervical portion of the spinal marrow. If pressure be made on the different vertebræ, cough is excited by pressing on one of them. In that case leeches, and afterwards blistering the part, and keeping up a discharge, cures the disease. At the same time, the bowels are to be kept open. If this disease be neglected, especially at or after the time of puberty, the trachea and lungs become affected, and phthisis takes place.

The remarks I have made on cerebral, are applicable to spinal irritation; and this cough is an example of the effects which will be farther seen in an obstinate disease I am soon to mention. More irremediable or even fatal consequences, may arise from inflammation of part of the spinal marrow, or effusion of blood, or serum. Local pain, with paralysis or spasmodic affection, or pain of the organs supplied below, are the symptoms, and death succeeds either a general spasm or stupor. If any thing can be done in these cases, it is by free topical bleeding, and the application of caustic. The cases which end best, are those where there has only been torpor of the part, succeeding possibly to previous excitement. These may be tedious and alarming, but are curable.

Some affections of the abdominal nerves produce headach, attended with much feeling of fulness. Now, in many cases, this fulness is the most prominent part of the disease, and is more obstinate than headach. It may even go the length of apoplexy; but this I cannot consider here, nor is it necessary to do more than mention it. There is, however, in females, both at an early and mature period of life, a very distressing disease, which must be attended to here. It may succeed to exposure to the sun in summer, or stooping; but it may also come on suddenly, entirely from visceral affections. The patient, in slighter degrees of it, merely feels, suddenly, heaviness of the eyes, weight in the head, some pain at the upper part, but this is not constant, vertigo, and a sense of fulness in the throat. If standing, she is obliged to sit down, partly from giddiness, partly from weakness of the limbs. The latter symptoms abate, and she feels relieved, but not well, and suffers many aggravations of the complaint. In the more severe cases, she feels as if the blood were rushing violently to the head,

and has so much vertigo, that she cannot stand, hardly can sit, and requires to have her head held. If no active means be pursued, the complaint becomes very protracted, and for months she cannot walk, and even sits with difficulty. These are merely different degrees of the same complaint. The best remedy is venesection, to an extent proportioned to the violence of the symptoms. Leeches are useful, but in a very inferior degree. Cupping at the upper part of the neck is highly advantageous. The head ought, in severe cases, to be shaved and blistered. In all, the bowels are to be freely opened. In protracted cases, asafœtida with aloes appear to be useful, and an issue in the neck or on the head is requisite. Some prolonged cases have speedily been removed by erysipelas, followed by sloughing and copious suppuration, taking place about the issue.

Another modification of this disease appears under a variety of symptoms, and too often is considered merely as hysteria. I do not object to this, if thereby the proper treatment be not omitted. I shall describe some of the varieties, as they appear in females, generally, but not always, at an early period of life. One frequent form is spasmodic croup, or acute difficulty of breathing, accompanied with hoarse cough and wheezing, rapid pulse, and heat of the skin. This yields speedily to bleeding, but is apt to return, and therefore requires purgatives to remove the primary cause. It often occurs for many nights in succession. Emetics are dangerous, without the previous use of the lancet; and, in severe cases, the patient cannot wait their operation. Arsenic and fœtids, in the intervals, are useful; but purgatives and strict diet are indispensable. In some cases, the pulse is excessively rapid, the face flushed, the eye suffused, and the head confused. The sensibility is morbidly increased, so that a very little light is offensive, and the smallest noise excites either spasmodic croup, or general muscular agitation; and there is at an early, but particularly at a more advanced period, a propensity to laugh or cry without any evident cause. There is thirst, and no appetite. The head either is not pained, or the patient does not attend to it. The eye-lids are heavy, and soon cannot be raised. Presently the fits of spasmodic breathing become less frequent, but the head cannot be

supported from weakness of its muscles; and soon the whole body becomes more or less paralytic. The arms cannot be moved; a weight, like a bar of iron, is felt on the chest; the pulse becomes slow, and soon beats only perhaps thirty times in a minute. What the result might be, if relief were not artificially obtained, I do not know; but the probability is, that death would take place. Even active means, if not promptly employed, do not prevent a very tedious and varying disease. The treatment I have found most useful, is the instant and free use of the lancet, detraction of blood topically, full purging, and shaving and blistering the head. These means are soon productive of relief, but it is necessary afterwards to keep up the action of the bowels, and occasionally to take away blood by cupping between the shoulders. This is also of excellent effect, in that variety of puerperal delirium, which I have described as analogous to this. If the first symptoms be not instantly attacked with the lancet, and paralysis have come on, nothing gives so speedy relief as caustic applied to the neck; or any very strong and rapid stimulus, as hot water, might have the same effect. Before the pain of the caustic has been long felt, I have known the patient able to move her arms, and open her eyes, but the slowness of the pulse usually continues long. Anomalous and protracted symptoms may succeed to this partial cure, or may follow where less active treatment has allowed the disease to remain in more force. The power of walking, for instance, may be slowly though not perfectly restored, but slightly convulsive agitation of the muscles, with insensibility, may take place at uncertain periods; or every night, or every second day, for a time, the patient may complain for a few minutes of headach, or vertigo, or is observed to be dull, and then sinks down in a state of coma; there is no flushing, no stertor, and little affection of the pulse. From this she partially awakes, or is roused by convulsive motions of the arms, or muscles of the trunk; the eye turns spasmodically, and the jaw is opened to its utmost extent, and fixed for a time.* Then the spasm

* These strong and apparently convulsive contractions of the muscles, are greatly, and in some instances, altogether dependant on transient paralysis of their antagonists

relaxes, and if the patient have been supported, she sinks down, as if quite exhausted, and in a state of syncope; but the pulse is not weak, though sometimes frequent. Soon, in general, another attack comes on, and then she is relieved. It is usual, during some part of the paroxysms, for the stomach and bowels to seem prodigiously inflated, and feel very hard; but in an instant, and without any evident discharge of flatus, the inflation vanishes. This tumefaction, however, is often apparently increased by the spine being bent back, and the abdomen protruded. The paroxysm does not go off by much eructation, but often by ineffective efforts to vomit. It is usually accompanied with distressing feeling of stuffing, particularly after eating. Sometimes paralysis of particular members or organs suddenly takes place, and as suddenly goes off; one side may be affected, or the sphincter of the bladder, or tongue, or pharynx, may be paralytic, and continue so for many hours. The patient cannot speak, and although tormented by thirst, cannot swallow, but spontaneously these symptoms go off for a time; anæsthesia generally exists as long as the disease lasts, and particularly in the lower extremities. At last, after many months, all these affections subside; and although they may be replaced by others, connected with a different set of nerves, yet in general, the health is slowly restored. It may, however, be a year or two before it is perfected, if ever. To prevent this tedious and uncertain issue, it is evidently important to attack the disease at the first, in the most vigorous way by depletion, and the means proposed. At this second stage, the plan must be general, such as the administration of laxatives, the regulation of the diet, the use of arsenic, fœtids, &c., and gentle exercise in the country. But I confess, in most cases, I have not known decided advantage from any medicine, beyond what was required for symptoms as they arise, time appearing to be the chief remedy. Another variety of this, is attended with violent pains in the head, and extreme weight or throbbing, alternating with palpitation, incessant cough, pain in the side, or excessive griping. The occasional wheezing, the convulsive affection of the members, and the partial paralysis, and fits of stupor, or insensibility, are similar to the former variety. Mercury and arsenic, purgatives, tonics, and antispasmodics, have been

tried in this case, with little apparent benefit. Venesection for the more severe affection of the larynx, or pain in the side, leeches or blisters for the feeling of fulness in the head, large doses of laudanum for the relief of pain in the head or bowels, blisters on the head, issues in the neck, and friction for the paralytic affection, have seemed to do good; but, as in the former case, time has been the grand restorer; and it is satisfactory to know, that most deplorable and protracted cases have thus been relieved. In the wane of the disease, the recovery may be accelerated by redoubling the attention to the bowels, giving almost daily some purgative potion, and at night extract of hellebore. When there is a renewal of the sensation of fulness in the head, or any suffusion of the eye, cupping is useful. This, or the use of leeches is also proper, when the patient sits weeping. In other cases, the symptoms have been at first, at least, and sometimes altogether more concentrated toward one organ. In some, for instance, there has been from the invasion, pain in the head, gradually increasing to the greatest degree, at least, if the plaints of the patient be admitted as a criterion of severity. The pulse has been frequent, and then slow or irregular, and the same gaping, coma, and inflation of the bowels, attending on a former variety, appear here. In others, there is chiefly throbbing in the head and neck, with much vertigo, so that she cannot sit. Some, again, refer the sensation to the stomach, complaining of much feeling of sinking there, on sitting up, which is soon followed by frequency of pulse and headach. In many of these patients, if great attention be not paid to the limbs, the knees become bent, and the thighs raised to the belly, so that it is long before the contraction of the muscles can be overcome; but this is generally at length effected by friction, and efforts to stretch the limbs, or walk.

There is one feature of this disease still to be noticed, which fortunately is not invariable, but nevertheless is very commonly an attendant, I mean temporary mental aberration.* A very early

* This is to be distinguished from a common attack of insanity, which may affect young girls, as well as others, both by the previous symptoms, and by the periods it observes. Insanity may be preceded by cephalic symptoms, and at-

manifestation of this consists in obstinate deceit. In some cases, the patient pretends to be asleep, in others to be blind, and this I have known persisted in for months, with great pertinacity. Others will not eat, although pinched with hunger, or will only eat in a whimsical way. Then, the mind suffers more, the patient being as if in a waking dream, or sometimes melancholy, sometimes in high spirits. She forgets the names of persons and things, as well as their relation to her, and forms new opinions concerning them. This state sometimes continues, without interruption, for many weeks; in other cases, it comes on at regular intervals; so many days, for instance, at the end of a fortnight, or perhaps even every second or third day; and it is observable that often the appetite is voracious, during those days.* Like the bodily distemper, this yields rather to time than to management; nevertheless, prudent exercise of the mind, and, in a state of convalescence, vigilant efforts to prevent a relapse into any former bad habit, along with strict attention to the diet, and the alvine discharge, will be useful. The best prophylactic of those distressing diseases, is to avoid whatever can irritate the brain, particularly costiveness; and those who have the charge of young females cannot be too careful in this respect.

It is a circumstance deserving attention, that in these diseases, although different parts become suddenly paralytic, and although the stomach itself is much affected, and perhaps may even, as well as the bowels, partake of the torpor, if not of the paralysis, for a time, as we see in the sudden inflation, yet the heart and lungs never lose entirely their power. The heart may beat slowly, and the lungs may act with difficulty, but life goes on. In another affection, however, death suddenly takes place, either from the heart and lungs ceasing at once to act, or from the brain losing its

tended with frequent pulse, inflation of the bowels, more or less, at different times, and even involuntary discharge of urine; but the mental affection is continued, and the prominent corporeal symptoms mentioned above are absent. Early venesection, followed by purgatives and tepid bathing, and mild diaphoretics, constitute the practice, and generally in a few weeks the attack goes off.

* In many of the modifications of this disease, whether the mind be affected or not, every exacerbation is attended with increased appetite.

activity. The patient merely says he is not very well, and is not disposed to rise, and then suddenly expires, without a groan or struggle. In a few cases, a kind of general uneasiness or languor has preceded this for a day or two. Dissection discovers nothing unusual in any of the cavities, or in the spine.

With children the case is a little different; for in general they complain for some days, perhaps for a week or two, of slight and varying fever. The pulse is frequent, there is some headach, the nights are restless, there are thirst and anorexia. In the evening the cheeks are a little flushed, and the fever increases, but abates toward morning. The water is not much altered, but sometimes it is thick and white. The bowels are costive. Then, all at once, without any material increase of the complaint, nay even when the patient has seemed to be better, and appeared to have a return of appetite, he has been seized with a convulsion, and suddenly expired; or repeated fits, with rapid motion of the eye-lids, and extreme gaping have taken place, and in a few hours he has died. In some cases, a little fulness of the veins in the head has been observed, or I have detected a very little water at the base of the skull, or in the spinal canal; but in other instances, nothing could be discovered by dissection. More than one child in the same family has died thus. The treatment consists in lessening the cerebral irritation, by venesection or leeches, in the regular exhibition of laxatives, and in determining gently to the surface by mild diaphoretics. If the symptoms do not yield soon, a blister to the back part of the head is useful. This fever bears a strong affinity, or rather is only a modification of that, improperly called the infantile remittent fever, which may very properly be considered at this time, as it really proceeds from cerebral irritation, in whatever way that may be excited. It will be useful to divide it into that variety which occurs in early infancy, and that which takes place in childhood. The first is very similar to the early stage of hydrocephalus, but the remissions are more distinct in the morning, and the exacerbations greater in the evening. There cannot, however, be much difference, for in both we have much cerebral irritation, and the difference is more in the result, than in

the early condition. The pulse is extremely quick,* the skin hot, the mouth warmer than usual. The child is at first fretful, restless, costive, and inclined to vomit; then he becomes more oppressed, and in some cases has slight cough, with increased secretion of phlegm in the trachea; perhaps, he does not for hours lift his eyes, till the remission comes, when he looks up, and attends to the objects presented to him for a short time. He sucks in general freely, and sometimes bites the nipple, and very often aphthæ appear in the mouth. The bowels are irregular, but whether the stools be frequent or seldom, they are generally green or brown, and offensive. The urine is usually high-coloured and scanty, and sometimes the feet swell a little, and very often become cold. If the disease prove fatal, it is generally attended, in the end, with symptoms of effusion into the ventricles of the brain, or the infant is exhausted gradually by the continuance of the fever, or more quickly by the accession of obstinate diarrhœa. A favourable change takes place, sometimes about the fifth day, sometimes later, the child looking up for a longer space of time than formerly, and seeming more free from sickness. After this, the symptoms subside, and the strength is gradually restored. It is very common to find, that at this time one or more teeth have made their appearance. In many cases, the fever may proceed from affections of the bowels; but frequently it is caused by dentition, the irritation in the jaw operating either alone, or in connexion with a morbid state of the bowels. In this kind of fever, the gums should be carefully inspected, and, if necessary, cut. Small doses of calomel should be given morning and evening, mixed with magnesia, to prevent costiveness, or evacuate irritating fæces. A few drops of tincture of hyoscyamus, with a saline julap, may be given occasionally to abate irritation. The tepid bath should be employed once a-day, when the exacerbation takes place, and the strength supported by the breast milk or beef tea. If the child be plethoric, a leech should be early applied on the forehead;

* In the early stage of hydrocephalus, the pulse is more irregular, and often beats alternately quick and slow, for two or three pulsations.

and if a favourable crisis do not soon take place, the head ought to be blistered. In some cases, although the acute symptoms go off, the child does not recover, but remains fretful, languid, and emaciated. The eyes are suffused, the feet swell, and the stools are not regular nor natural. In some instances, tumour of the mesenteric glands seems to be excited.

The remittent fever of older children, is met with from the age of two to ten or twelve years, and is generally found to be produced, either speedily, after eating some improper substances, which have not been immediately removed from the stomach or bowels, or gradually, by the induction of a costive state, or the accumulation of irritating fæces in the bowels. In the first case, the fever attacks suddenly, sometimes through the day, but generally at night, and the child is sick, pale, very restless, extremely hot, disturbed in the sleep, and thirsty. Sometimes he vomits, or complains of headach, or pain in the belly. The tongue is at this time tolerably clean, but next day it becomes furred, and the fits of vomiting or sickness are pretty frequent. They are generally preceded by headach, which goes off or abates after throwing up. If this disease be attacked immediately with an emetic, followed in the morning with a smart purge, the health is soon restored; but if the remedies be delayed till the next day, I have generally found, that although the emetic, with purging, mitigate the disease, it does not arrest it speedily, and notwithstanding the regular use of laxatives with diaphoretics, it continues for several days. Emetics and purgatives, in this disease, generally bring off some half digested substance, such as almonds, orange peel, &c. It is astonishing how torpid the bowels sometimes are, large doses of medicine, either producing no effect, or, lying for some time inactive in the stomach, they are then vomited. In such cases, strong clysters are proper to assist the physic. In this fever, if the symptoms be acute, and there be much headach, advantage may be derived from the use of the lancet. Experience convinces me, that this is safer and better than the application of leeches, which in cerebral diseases of the febrile kind, may weaken, but seldom do good, unless in the slightest cases. Where the constitution, however, is rather feeble,

the lancet must be used with caution, and here leeches may be admissible, or in infants they may be applied.

In the second case,* the attack is often more gradual, the child being for several days somewhat feverish and unwell. The pulse is frequent, and, in the course of the day, he has several attacks of feverishness, during which he is dull, and disposed to sleep or lie down; but these do not last very long, and in the interval he seems tolerably well, but is easily put out of temper, and complains when lifted or touched, though he be not hurt. The appetite is not steady, he has little thirst, and the tongue is clean. The bowels are sometimes very open, but oftener bound. These symptoms appear more or less distinctly for about a week, though sometimes not so long. Then an acute paroxysm of fever takes place, preceded by shivering, and attended generally by vomiting. The pulse becomes much more frequent, sometimes 140 in a minute. The cheeks are flushed, and the patient is very drowsy, but complains of little pain in the head, or indeed any where, except occasionally in the belly, which may at times be very severely pained; or if he complain of headach, it is evidently from his stomach, for it is followed by sickness or vomiting. There are, however, cases where the headach is both violent and permanent. The fever does not continue alike severe during the whole of the day; it remits a little, but not at very regular hours. The exacerbation, which usually occurs in the afternoon, is generally accompanied with drowsiness. Very soon after the attack of fever, the tongue becomes covered with a white or brown coat, and both the stomach and the bowels seem to be extremely torpid. The appetite, indeed, is soon almost totally lost, or the food which is taken is not digested. The bowels are generally, but not always, costive; and the stools are fœtid, dark-coloured, sometimes like pitch, or thin and olive-coloured, or green and curdy-looking, or clay-coloured, indicating a deficiency of bile. This last state sometimes alternates with too copious secretion of bile. There is a great desire to pick the nose and lips; and if the child be not watched, some-

* This is commonly called a worm fever, although worms are not necessarily passed in this disease.

times an ulcer is thus produced upon the lips or angle of the mouth.

The face is flushed during the exacerbation; but except at this time it is pale. The eyes are dull and white; though sometimes, in the course of the disease, they are unusually clear. Generally delirium occurs in the advanced stage of the disease, and in some cases it is difficult to keep the child in bed. From this state, however, he can usually be recalled for a few minutes, and will then answer questions distinctly. If the debility be considerable, the countenance becomes vacant, the child picks at the bed-clothes, and though he does not speak much, makes a constant inarticulate noise. In some instances convulsions have taken place; but these are rare, and are chiefly met with in young children. Sometimes the stools are passed in bed, without any intimation being given. In severe cases the patient becomes paralytic on one side, and perhaps convulsed on the other, moans much, has fits of screaming, and almost maniacal yelling, strabismus, loss of memory and of sight, or that extreme degree of gaping I have noticed above. This disease runs on for a week or two, or even for several weeks, and may at last destroy the patient by universal debility, or exhaustion, or diminution of the cerebral function; events which will take place earlier, if the proper remedies are not employed, than if they be, even although they may ultimately fail. In general, success attends their use. Tumefaction of the belly, with great and constant fever, are very unfavourable, and the symptoms usually supposed to indicate pressure on the brain, or paralysis, &c. are still more so; nevertheless these are not absolutely mortal, for they by no means certainly indicate effusion. Even in cases of effusion, or pressure, these symptoms proceed from the impaired functions of the brain and nerves, consequent to pressure, and any other causes, capable of producing a similar diminution of function, will have precisely the same effect. We see this exemplified by the effects of concussion of the brain; by that instantaneous loss of power producing universal palsy and death; and those diseases, producing sudden palsy of particular sets of muscles, that I have already described. It is also exemplified in the effect of burns, and surgical injuries, where stupor or paralysis take place, and often

prove fatal. All these cases show, that pressure is only one cause of these symptoms, and merely an exciting, not the proximate cause. This fact, and a recurrence to some of the cases noticed above, afford strong evidence that we have no diagnostic mark of structural and irremovable injury of the brain, in these diseases; and, therefore, we are encouraged to proceed in an attempt at a cure, in circumstances where we would otherwise abandon all hope.

In mild, but protracted cases of this fever, the patient perhaps is confined to bed only part of the day, and becomes cheerful in the afternoon. The stools for a day or two improve, and then become very offensive; the appetite returns soon, but the fever, emaciation, tumour of the belly, and other symptoms, may continue for several weeks.

This bears a strong resemblance to hydrocephalus, and it cannot be otherwise, for in both, in many cases, the cause and the effect are exactly the same. The chief assistance, perhaps, in the diagnosis, is derived from the intensity of the symptom, but this is not a certain rule to go by. In hydrocephalus there is a more frequent vomiting, and as often a tossing of the hands above the head, as picking of the nose, or lips. There is generally constant pain of the head, which in this fever is sometimes altogether wanting, or is slight, or, if severe, comes in paroxysms connected with sickness, or affection of the stomach. There is screaming and strabismus, and often a more constant delirium, from which the patient cannot be roused, after it has continued for some time; and convulsions are accompanied with great injury of the mental faculties. There is in general, in this fever, more complete remission of the symptoms at some time of the day, than in water in the head, the pulse not only being slower, but the child more lively and easier. The stools are more fœtid and darker than in hydrocephalus, in which they are often thin and bilious, and sometimes glossy. The pulse in hydrocephalus is more irregular, and, in the second stage, usually becomes slow and intermittent. It must, however, be repeated, that, in many instances, it is very difficult to make the diagnosis, especially if we have not attended the child from the first. I have had the happiness of seeing children reco-

vered from situations apparently desperate, when there was every reason to fear that there was water in the head, though the result proved the contrary. Fortunately, in all such ambiguous cases, the exact diagnosis would be of more consequence in determining the prognosis than the treatment. For, in these circumstances, the application of blisters to the head, the use of laxatives, and supporting the strength, are the means to be chiefly resorted to in both diseases.

This disease very generally, but by no means invariably, proceeds from disorder of the bowels, irritating the brain. Derangement of the functions of the stomach and intestines, or liver, &c. unquestionably re-acts on the origin of the nerves, and produces, as has already been stated, various effects. We are not yet enabled to say, what particular mode of irritation gives rise to the different modifications of phenomena; or why, in one case, the same apparent exciting cause should produce spasmodic, and in another febrile affection. The fact, however, is incontestible, that in some cases, unripe fruit, or much pastry, or costiveness, shall sometimes cause a fever, sometimes chorea, &c. In the present disease, the cause is generally resident in the bowels; but assuredly other exciting causes may affect the brain, in a similar way; and, therefore, the modern view, that the disease is seated in the bowels, and that the remedy is purging, is too simple. But whatever may excite the cerebral irritation, there can be no doubt that it again re-acts on the abdominal viscera, and these on one another, so as to induce soon a complicated, and often both a protracted and dangerous disease. This state of the brain is not inflammation, but inflammation may supervene on it. It does not seem to affect the whole brain equally and universally, but may be confined to the basis and the upper part of the spinal marrow: and farther, it is evident, that this state of irritation may be succeeded by torpor of the parts so affected; or one part of the brain may become torpid, whilst another is still in a state of irritation, or excitement. This view, I apprehend, explains why some parts of the body are excited to over-action, and others, in course of time, become almost or altogether paralytic. In the treatment of this fever, our objects are to remove the farther operation of the

exciting cause, to lessen cerebral irritation, and to obviate particular symptoms. In the very commencement of the disease, more especially if there be still some degree of chilliness, and especially if there be reason to suspect that any indigestible aliment have been taken, an emetic is of the greatest service, and ought seldom to be omitted. As soon afterwards as the stomach will retain it, an efficient purgative is to be administered, so as to operate copiously. It is also proper to attend to the existence of other irritations, whether in the gums or elsewhere, which we endeavour to detect by accurate and close investigation; and when we are at a loss, we may often be assisted by manual examination of different parts of the body, and of the spinal region. Means are to be taken for removing any cause that can be discovered. All this may be done in a few hours, and if early resorted to, the disease is at once checked. If, however, it be not, or we have not seen the patient in the first few hours, then it comes to be considered, how far the detraction of blood is likely to lessen the cerebral excitement. If there be headach, heavy eye, flushed face, ardent heat, and frequent throbbing pulse, I am decided both as to the safety and utility of venesection. I know there is a prejudice against it, from the hazard of debility; but it is not ascertained, that a patient who has been bled, but not cured thereby, is weaker at the end of a fortnight of fever, than one at the same period, who has not been bled; whilst, on the other hand, it is proved, that the disease is often rendered milder, and occasionally at once removed, by this remedy. So soon as the cold stage has began to pass off, and the heat is increased, bleeding may be resorted to. Leeches are of no great avail in this view. They may relieve locally, but they do not check the fever, unless in very young subjects. Venesection, on the other hand, particularly if it produce sickness or faintness, often brings down the pulse, instantly to the natural standard. It rarely, however, continues at this, but soon rises, yet not to the same degree as before; and in favourable cases, the disease passes off perhaps within three days from its invasion. I am not, from these remarks, to be supposed to sanction indiscriminate and injudicious venesection, nor this evacuation at all, if it have been postponed beyond the commencement of the disease.

Those who are weak, are either not to be bled at all, or sparingly; and when we find that, during the flow, the pulse becomes smaller, feebler, and more frequent, the evacuation is not safe, and is immediately to be checked. It is impossible to lay down a rule, as to the quantity to be abstracted at different ages; for much depends on the constitution, the size of the orifice, and modification as well as period of the disease. In general, five ounces are enough, and not too much, from a patient six or eight years old. After bleeding, or in cases where it has not been expedient to practice it, if the skin be steadily hot, advantage is derived from sponging the surface frequently with cold water. If the disease be not checked, our object is to mitigate and shorten it as much as possible; and this may be greatly assisted, by examining daily into the irritation which exists, or the sympathies which have been excited, that suitable remedies may be applied, such as local bleeding, blistering, friction, sinapisms, or internal medicine. If there be no prominent symptom, our attention is chiefly directed to the bowels, which are never to be neglected, and to the secretion from the skin. The surface is to be kept in a soft and slightly moist state by saline julap alone, or containing a little antimony. The bowels are to be kept in a state of due action by purgatives. We cannot, *a priori*, say what quantity may be necessary to procure stools. Usually, it is great beyond what any one who has not seen much of this disease would expect. Senna tea answers the purpose very well; jalap or castor oil may also be employed; or, if the child can swallow pills, the aloetic pills stay well on the stomach, and, if given in sufficient number, act excellently on the bowels. A moderate dose of calomel may be premised or given along with any of these purgatives. Clysters are of great benefit. It is useful to purge the bowels freely at first; but after this, it is not proper to give so much medicine as will operate strongly.* Drastic purges, particularly large doses of calomel, must not be employed at this time, for they induce subsequent weakness or

* Dr. Pemberton judiciously remarks, that if strong purges are given, the intestines are apt to become distended with air, and the patient is destroyed with tympanites. Practical Treatise, &c. p. 165. It is worthy of remark, that dissection often discovers nothing but great inflation of the intestines.

torpor of the bowels. It is requisite, however, to give regularly such doses as shall keep the bowels open, and support their action. When the stools are loose, purgatives are still proper, in prudent doses, to evacuate them; for they are not natural in their appearance, and injure the action of the intestines. The exhibition of one blue pill for one or two days, alone or with a little rhubarb, is useful in the view of improving the action and secretion of the bowels. Whether this disease have been originally excited by disorder of the bowels, or by some other cause acting on the brain, and the bowels have thereby become affected in a secondary way, still purgatives will be found useful on very obvious principles.

Opiates, in the wane of the disease, frequently allay irritation and accelerate recovery, by procuring sleep. Anodyne clysters are useful in this respect, and, especially if conjoined with fomentations, also for abating griping or abdominal pain. Pain in the side, if not removed by rubefacients or anodyne balsam, requires a small blister. The tepid bath sometimes allays general irritation. When there is continued pain in the head, or uneasiness of any description there, it is proper, at an early stage, to apply leeches. and at a more advanced period, to shave the head and bathe it with cold vinegar. Blisters, particularly on the back part of it, are also proper, especially when there is delirium. If symptoms of torpor, or loss of vigour in one part, and undue excitement in another part of the brain appear, blisters, either to the head or nape of the neck, are requisite; at the same time that the bowels are diligently, yet prudently to be stimulated by purgatives. In such cases, it is useful also to employ mercurials, such as the blue pill, combined with aloes, so as both to excite the bowels, and produce what is called an alterative effect on the system; taking care not to push the remedy too far. Occasionally small doses of antimonium calcareo-phosphoratum may be conjoined. By these means most unexpected recoveries have taken place, where the symptoms were such as to lead to strong apprehension that water had been effused in the head.

In the course of the disease, the liver is apt to have its function impaired, and even more chronic diseases may be excited in it. Mercurials and purges are useful in this case, and doubtless, if

these or other means were not early employed, for exciting a healthy action of the bowels, this hepatic affection would be more frequent and more dangerous. If the region of the liver be tender on pressure, then, besides the other means, we should either apply leeches, or a blister to the part, or both, according to the acuteness of the symptoms.

The diet should be light, but it is not proper to force the patient to eat. In the progress of the disease, infusion of bark or other tonics are sometimes beneficial, and ought always to be tried. Wine may also be given in small doses, when there is much debility. If it do not produce flushing, headach, and exacerbation of the fever, but rather promote sleep, it will do good. When the disease is protracted, it is often of advantage to intermit the use of purgatives, and employ only clysters, and at the same time begin the use of steel. Under this plan, the bowels, though formerly not moved by strong medicine, act more regularly, and recovery goes on fast. As this happens in the progress of protracted cases, it is probable that sometimes the purgative and mercurial medicines are pushed too far, and keep up an undue irritation. Great attention should be paid to cleanliness and ventilation, and, when convalescent, a removal to the country is highly useful.

CHAP. VI.

Of Hydrocephalus.

Hydrocephalus is one of the most dangerous and insidious diseases to which children are subject. It sometimes makes its attack suddenly, cutting the patient off in a few days; sometimes more gradually, and is protracted for many weeks or months. It has, therefore, been divided into the acute and chronic; and as it may either appear as an idiopathic disease, or come on in the

course of other diseases, at first quite different, it may likewise be distinguished into the primary and secondary.

Acute hydrocephalus begins very like a common fever, but there is more frequent vomiting, and greater pain in the head, especially on one side. After the febrile symptoms have continued for some time, marks of oppressed or debilitated brain appear, and the patient dies comatose, or convulsed. Such is the outline of the disease, which, however, it will be necessary to describe a little more minutely. Very often the patient, for some time previous to the attack, is languid, peevish, and uncomfortable, without any particular complaint. The appetite is impaired, he has frequent sick fits, or vomits bile, and the bowels are generally very costive, though sometimes he purges fœtid, dark-coloured, or green fæces, and he complains occasionally of his head. Towards evening, the face is a little flushed, and the skin is hot, and very soon the disease becomes formed. In other instances, however, and these by no means unfrequent, the disease invades more suddenly, or with scarcely any previous indisposition. The patient feels chilly, whilst his skin is hot; he generally complains greatly of his head, especially at the forehead, causing him to frown, or at one side, sometimes very much of his neck; but, in a few cases, I have found the patient denying that he had much or even any pain in the head. Convulsions sometimes appear as one of the first symptoms, but, more frequently, they do not come on till an advanced stage. From the commencement, the patient can seldom keep out of bed, his eyes are usually very sensible to the light, and when examined, the pupils are contracted, perhaps irregularly, and the eye in some cases is troubled, in others as clear as usual. I must, however, observe, that sometimes there is not the smallest increase of sensibility to light. Spasmodic cough and pains in distant parts occasionally supervene. The head-ach is constant, and produces moaning, or the patient lies silent and unwilling to speak a word, or often even to take a drink. The stomach is very early affected, and for some days he vomits bile, and whatever he swallows; he has no appetite; the thirst is variable; the tongue white, the bowels generally costive, but sometimes loose,

and the stools in that case green and fœtid; pain is felt in the belly, and occasionally in other parts of the body. The sleep is broken, and frequently interrupted, as if the patient had a frightful dream; he starts, grinds his teeth, and picks his nose, which makes the disease sometimes pass for the consequence of worms. The pulse, in a few cases, is not very frequent; but in general, especially if the disease be rapid, it is at first very quick, being about 120 in the minute, but subject to pretty rapid and considerable variation within a short time, in point of frequency. In about eight or ten days, the pupils are somewhat dilated, and the patient squints a little. In some cases, the vomiting is renewed, but more frequently it is not. The pulse at this time often becomes slow, beating only 60 in the minute, and being generally irregular. The pupil is more dilated, and the eye less sensible than formerly to light. The headach is often diminished, but the patient frequently cries out, or even screams. In some cases, delirium comes on; in others, the patient continues sensible and intelligent, until the stupor supervene. More food is often taken in this stage, than formerly. In the course of either two or three days, the pulse becomes again quicker, the pupil more dilated; but still the patient may continue to see, and complain of the light, and often answers distinctly every question. Presently, however, the symptoms of oppressed brain become greater, the pulse is weak, and gradually increases to 160 in the minute. The eye squints, vision is at last lost, the urine is either retained, or, with the fæces, passed involuntarily. The breathing becomes stertorous, and the patient dies; or he may sink from weakness, and remain sensible till the last, or having been delirious, or even comatose, he may recover his intellect and sensibility, for a short time before death. Even the power of vision and hearing have been thus recovered. In the course of this malady, the cheeks are alternately flushed and pallid; and after the second stage, one side is more or less paralytic, whilst the other in many cases is convulsed; indeed convulsions may come on at any period of the disease, even in its commencement. The symptoms are generally aggravated during the night. When the patient sleeps, the eye-lids are often only

half closed, and the eyes turned up. He complains much, or becomes giddy, when the head is raised.

Hydrocephalus has been divided into three stages, characterized by the state of the pulse and of the sensibility. In the first, the pulse is frequent, and the sensibility great. In the second, the pulse becomes slow, with marks of oppressed brain. In the third, it is again rapid, there is great debility and cerebral irritation. But it is to be recollected, that these stages are not always well defined, sometimes the pulse never becomes slow, and the division cannot be relied on.

This disease runs on generally till the twenty-first day, if the patient be above two years old; but if the child be younger, it often terminates more speedily, sometimes so early as the fourth or fifth.*

From this account, it appears, that the symptoms, when the patient can describe them, are in the first stage much the same with those of the fever of the adult, or the remittent cerebral fever of children, and that upon these supervene those of oppressed brain. In some cases, however, water has been found in the ventricles, when no symptoms indicated it during life,† or when many of the usual symptoms were absent.‡

Infants cannot give an account of their sensations, and therefore we are more uncertain, until the symptoms of oppressed brain appear. We may, however, dread the nature of the disease, when the infant has a high fever, vomiting, with costiveness or diarrhœa,

* It is not at all uncommon in hydrocephalus at the expiration of eight or ten days, especially if its progress has been rapid, for the more violent symptoms to subside so as to induce a very sanguine expectation of a speedy recovery. This is often a most treacherous and fatal calm, as it results from an effusion in the ventricles of the brain. The vessels in this way become relieved, and the disease is suspended. After a short time, however, the extraneous fluid acts as a re-exciting cause, and the disease returns with redoubled force. Under such circumstances, it is perhaps incurable. Effusions in other cavities of the body may be taken up, but as far as we know, the ventricles are destitute of absorbents, or if they exist, they act incompletely in these cases. C.

† Vide Quin's Treatise, p. 43.

‡ Dr. Rush mentions cases where there was no pain in the head, or where it began like a catarrh, or wanted the strabismus, dilated pupil, sickness, and loss of appetite. Med. Inq. Vol. II. p. 210.

lies oppressed, and apparently sick, with the eyes obstinately shut, dislikes the light, puts the hand frequently up to the temples, as if going to rub something off the head, has starting and spasms, and awakes suddenly as if terrified, and sucks or drinks at first with great rapidity. The diagnosis, it must however be confessed, is very difficult; for in disorders of the bowels, from dentition and other causes, spasms, starting, drowsiness, and strabismus, may take place.* Dark green stools forming a gelatinous mass, not possessed of a fœtid smell, have been considered as peculiar to the disease, by one very respectable writer, whilst others assert, that this appearance depends on the use of calomel. This state of the stools is not to be disregarded, but it cannot be depended on as pathognomonic; much less can the micacious deposition from the urine noticed by Dr. Coindet. Rapid and frequent variations in the frequency of the pulse, connected with other symptoms, are very suspicious. It is prudent, whenever there is much fever, with any ambiguous symptoms, to proceed as if the patient were threatened with hydrocephalus; more especially, as the early use of the remedies thus indicated, will generally be serviceable in the complaints with which this disease may be confounded; and if we delay till the late stage, to obtain a more certain diagnosis, we have scarcely any hope of doing good. When children can give an account of their sensations, we may with great justice fear this disease when they complain much of the head, have vomiting, and quick pulse. It is not however possible always to determine at once, whether the disease be that fever already described, or hydrocephalus, nor is it so essential as may be supposed, for prudence dictates, even in the mildest disease of the two, the prompt use of vigorous remedies.

Dissection shows that the vessels of the brain are full of blood, some of them very turgid, the membranes and brain in some places seem inflamed, and covered with coagulable lymph; whilst

* A very interesting case, where strong symptoms of hydrocephalus were produced by accumulation of the fæces, and a speedy cure obtained by purging with senna, is related by the late Mr. Benj. Bell.—Hamilton on Purgatives, p. 217. Other cases might be pointed out where strabismus, double vision, paralysis, screaming, headach, &c. all yielded to the same means.

betwixt the dura mater and the brain,* but still more frequently in the ventricles of the brain, there is an accumulation of water, sometimes to the extent of several ounces, and it is generally of a very pure and transparent quality. Small tubercular granulations are described by Laennec, and other late dissectors, as being dispersed through the brain; but these assuredly are not essential to the disease. The spinal marrow, or its covering, sometimes participates in the affection, and water may be formed there, or pass from the basis of the skull. This appears sometimes to be productive, in the early stage, of pain and rigidity of the neck, or peculiar sensations about the larynx, or slight irritation there, as if a small filament were tickling it. The intestines occasionally have an inflamed appearance, or portions are constricted, or intussusceptio is met with. The liver also may be somewhat enlarged.

Hydrocephalus is more readily excited in some children than in others, and this predisposition is very remarkable in particular families. Those who are of a scrofulous habit are liable to it; but it also attacks children who have no other manifestation of that constitution, and none, not even the most healthy, are altogether exempted from it. In infancy, both sexes are alike affected; but it is certain, that about the period of puberty, or a little before it, females are more frequently attacked. Coindet has stated the proportion at the age of twelve years to be as eight to one.

Exciting causes, acting evidently and directly on the brain, can sometimes be detected, as blows, or other injuries, exposure to cold, violent exertion, passions of the mind, the sudden removal of a continued irritation, or discharge from the scalp, or neighbourhood, &c. In other instances, it is excited by previous diseases acting in a secondary way on the brain, such as hooping-cough, scarlatina, &c. Any long continued fever, by keeping up a constant overaction in the vessels of the brain, which contain so large a proportion of blood, has been viewed as a cause, and doubtless where there is strong predisposition, it will so act. Transition

* In this case the disease is called hyd. externus, to distinguish it from the species in which the water is in the ventricles, which is called hyd. internus. By the former term, some of the ancient writers merely understood œdema of the scalp.

of action, it is also probable, is a cause. The continued irritation of important or very sensible nerves, is perhaps one of the most frequent causes; hence it may follow dentition, and very often arises from a bad state of the chylopoetic viscera. Having noticed this pathological fact in the last chapter, I have little to add here. It is an important inquiry, however, why in one set of cases, mere fever is excited, often simulating, no doubt, hydrocephalus, but rarely ending in it, whilst in another, this disease is speedily induced, in its most formidable characters. This would lead to a belief, that either, in many cases supposed to arise from the state of the bowels, the original disease has been seated in the brain, and the apparent disease in the bowels, has been only an early symptomatic affection; or, that the nature of the irritation, communicated to the brain, is different essentially in the one case and in the other: perhaps both suppositions may at times be true, and much also depends on predisposition.

The next inquiry is, what is the state occasioning hydrocephalus? Is it inflammation, and is the effusion analogous to hydrothorax succeeding pleurisy? An acute and considerable degree of inflammation ends in suppuration, and this is the termination of many cases of phrenitis. A more moderate degree, capable of greater prolongation, ends in serous effusion. Even a state of action inferior to inflammation, produces this; and it is this sub-inflammation, which I believe most frequently exists in hydrocephalus. During this state of irritation, amounting at most to what may be termed sub-inflammation, the pulse is frequent, and the fever generally acute. It ends in a state of exhaustion, weakness, or torpor, in which the cerebral functions are impeded, or diminished, in their performance. Symptoms, supposed to arise from compressed brain, take place at this period; but they do not arise from that source, but from the condition of the brain just described. They take place before effusion in all probability exists; they are similar to those produced by concussion of the brain, or any cause capable of interrupting or interfering with the performance of its functions. The train of symptoms are various and uncertain, in as much as one part may fall into torpor, whilst another remains still in a state of evacuation. Where effusion has taken

place, the parts are often thereby irritated, and the frequency of the pulse renewed, whilst usually the stupor augments. In a few instances, the nature of which we cannot yet ascertain, this pressure seems to excite rather to temporary advantage, for there have been instances of the intellect returning, and the patient being better, a short time before death. It is probable, then, that these symptoms, attending what has been called the second stage, and supposed to indicate effusion, merely evince the commencement of that exhausted or enfeebled condition, which leads to effusion, and that it is not too late, even at this time, to entertain faint hopes of recovery. After effusion takes place, in acute hydrocephalus, I hold recovery to be next to impossible: the few instances that have not ended in death have terminated in fatuity, accompanied with enlarged head. The term hydrocephalus, is therefore perhaps improper, as it is applicable only to the ultimate and incurable stage of this disorder; but, as it is universally accepted, it would be wrong to change it.

In considering the best mode of treatment, it is evident that we must, in the first stage, or that of inflammatory irritation, use the most prompt and vigorous means for allaying action; and in the second, or stage of diminished functions, use such remedies as may safely excite to more healthy and vigorous action, without stimulating to inflammation. In the stage of effusion, we may lay down the almost hopeless indication of promoting absorption, or artificially procuring the evacuation of the fluid.

In the first stage, much may be done by vigorous treatment, and many lives are saved thus, which would otherwise have been lost; or, in different terms, many are prevented from having the disease or stage properly called hydrocephalus, who otherwise would fall victims to effusion. The most efficacious means consist in the detraction of blood by venesection, or leeches, or both, according to the age of the patient, and the severity of the disease. In no instance ought leeches to be neglected, and they cannot too early be applied. Evacuations of this kind, carried as far as prudence dictates, ought instantly to be followed by the administration of smart purgatives; and I wish it could be impressed sufficiently on the minds both of parents and practitioners, that the loss of one day

in this active treatment, may be the loss of the patient. I am far from advising debilitating depletion, or late evacuations, but early venesection, or leeching, or both, if not carried the length of great exhaustion, will do good, or at least prove safe. At the same time that these means are adopted, the head ought to be shaved, and bathed frequently with cold water; and in a few hours thereafter, a blister ought to be applied to the back part of it. When I advise cold water, I wish it to be understood, that this is to be applied efficiently, not by wetting cloths once or twice, but by keeping the scalp constantly cool, or even cold, by the diligent repetition of wet cloths. The affusion of cold water on the head, I have some doubt of, as it is often followed by alarming collapse; but if it is to be practised, it must be very early, and when there is much heat, and immediately after, but never antecedent, to the evacuation. Blisters, I am confident, are useful; although some, whose judgment I respect, place little reliance on them.

Hoping that these means have given a check to the disease, our next object is to prevent a relapse or keep up and improve our ground, and this is done by strict attention to the bowels. The purging system ought therefore to be maintained, and that even although the child have a diarrhœa, if the stools be green, fœtid, or contain lumps. The best remedy, I believe, is calomel, in small doses, or such doses as excite or keep up the action of the bowels without purging too much. This, however, must not be often given, as it weakens the bowels; but soon we must substitute the blue pill, dissolved in a little warm water, and having the addition of some other laxative. Two pills, for instance, may be given for a dose, to a child of eighteen months old, with the addition of six grains of jalap, or a little infusion of senna. Small blisters ought also to be applied successively to the scalp, and all stimulating diet is to be avoided.

In the next stage, when symptoms of inaction or loss of energy in one part of the brain occur, perhaps with a continuance of excitement in another, remedies have little effect; but still, as they sometimes succeed, they ought invariably to be tried as sedulously as if we expected certain success. They consist in a continuation of blisters, the use of purgatives, and the exhibition of mercury, by fric-

tion or internally, so as to affect the system, or act on the brain. Antimonials have been used, in conjunction with mercury, but I do not know with advantage.

Paracentesis has been chiefly resorted to in the chronic species. In acute hydrocephalus, the fontanelle is often so prominent and elastic, as to give rise to a belief, that water is really lodged in contact with it. A puncture cautiously made has shown the mistake; and whilst it has not been attended with any injury, it has as certainly failed to do good. Opiates are hurtful at first, but in the conclusion they may sometimes render the scene less distressing, by abating the convulsions. These are also sometimes relieved by sprinkling the face with cold water, or administering a large clyster.

When hydrocephalus is known to be a family disease, it will be proper to use every means to strengthen the constitution, such as the cold bath, light nourishing food, and strict attention to the bowels. If the child be plethoric, or have momentary fits of insensibility, or the slightest and most transient paralytic affections or eclampsia, the bowels should be kept loose, and a small issue must be kept open on the head; from this I have observed great advantage. We should be particularly careful not to heal too suddenly any eruption, especially about the head. The first symptoms of disease must be watched; and we had better be blamed for using remedies too early, than have to regret that we employed them too late.

The chronic hydrocephalus makes its attack more slowly, and runs its course with much less speed. It seems sometimes to be gradually approaching from birth, the child being dull, languid, subject to frequent fits of stupor or drowsiness, and the head enlarging faster than it ought to do; or it may even begin in utero. In other cases, the child is at first tolerably healthy, and it is many years before symptoms of the disease appear. First of all, we observe him to be duller than usual, with a slight degree of fever, attended with pain in the head, sometimes constant but moderate, sometimes attacking like paroxysms of headach, attended with sickness and vomiting. He is amused for a short time with the entertainments of his age, but is soon tired, and generally is found,

after a little play, lying on a chair. The appetite is gradually impaired, and his food is apt to sicken him, or to be rejected by vomiting. The headach becomes more constant, and sometimes severe, often attended with giddiness, and pain or stiffness in the neck. The skin is rather hot, the pulse at first is frequent and irregular, although in some instances it very early becomes unusually slow, and continues so for a long time. The bowels are constipated, the urine sometimes passed with pain and difficulty. The eye is dull and languid, and at times the patient sees double or indistinctly. After these symptoms have continued some time, the bones of the head enlarge greatly, if the sutures have not united, and the veins on the scalp become very distinct. The body wastes, and the muscular powers are more or less impaired. In this state the patient may live many months; or occasionally the disease seems to recieve a check, and the patient lives for years with an enlarged cranium, and sometimes in a state of idiotism. In general, however, in a few weeks, or at most a few months, the symptoms of compressed brain become more distinct; and it has been supposed, but not always correctly, that these take place, whenever the head ceases to enlarge, and not sooner. The pupils are dilated, the patient squints, the limbs are paralytic and convulsed, the urine is suppressed, so that the catheter is required, the pulse full and slow, but presently it becomes weak and fluttering, and the patient dies comatose, with stertorous breathing. When the patient can give an account of his sensations, we may early be led to suspect some disease in the head, but in infancy we can receive no account of the sensations. We may discover it, however, by the unhealthy look of the child, the frequent application of the hand to the head, which often is greater, and feels heavier than usual, even before water be formed; drowsy fits, and sometimes convulsions; vomiting, and awaking terrified from sleep; at the same time that there seems to be no tendency to dentition. Afterwards the size of the head, and other symptoms, indicate the disease more decidedly.

There is an affection which is liable to be confounded with chronic hydrocephalus. The patient complains of his head and neck for a length of time, has the pain increased by exercise, agi-

lation, or reading long, and sometimes he squints. The pain, however, is rheumatic, follows the course of that disease, is not constant, and shifts its place. The squinting is either habitual, and consequently accidental, with regard to the disease, or it is caused by a temporary affection of the muscles of the eye, and is increased by looking long at any object. The patient is easily agitated, and at a more advanced age, would be said to be hysterical. Laxatives, bark, and sea-bathing are useful.

On opening the head, we generally find a great quantity of water in the ventricles, and some even on the surface of the brain. Sometimes the ventricles are so much enlarged, that the cerebrum resembles two vesicles laying on the cerebellum. The bones of the cranium are occasionally very thin and softened, sometimes very irregular on their inner surface. In a girl who died, after having been ill for about five months, I found the inside of the cranium, at the lower part, covered with sharp bony processes or spines. There is seldom, if ever, any indication of previous inflammation. This disease, therefore, differs from acute hydrocephalus.

The practice consists in the application of blisters to the head, or the formation of an issue on the scalp, by means of savine ointment; or a more general irritation may be kept up, by rubbing with garlic ointment, or ointment with tartarite of antimony. The bowels are to be kept open, or at least regular, by the use of purgative medicines; and it will be proper to give a course of calomel or mercury, combined with digitalis, nearly in the same doses we would use for dropsy. By this plan, some children are cured, and others have the head reduced in size for a time.* These have had the urine considerably lessened in quantity; and when the medicines do good, they increase the flow of urine. It has been proposed, by bandages, and other means, to support the bones of the head, and prevent distention, but of this I can say nothing from my own observation; and am persuaded it would be hurtful.

It has been proposed to draw off the fluid by puncture; and this

* In a case attended by my brother, he succeeded so far with the mercury and digitalis, as to render the fontanelle slack, whereas, before, it was tense and prominent. But whenever this slackness was produced, convulsions came on, and the patient died.

has been done, and sometimes, it must be acknowledged, with success. One case of this kind is related by Rossi, and another more lately by Dr. Vose, who cured a child by puncturing three times with a couching needle.*

The secondary hydrocephalus is a very insidious disease. In one respect, perhaps, the majority of cases of acute hydrocephalus may be called secondary, in as much as they are excited by other irritations, in the bowels or gums, &c. But by this term, I wish particularly to understand the attack which succeeds to some previously well formed and prolonged disease, such as scarlatina, hooping-cough, &c. It too often happens, that in the progress or sequel of such diseases, hydrocephalic symptoms supervene, and the child is cut off. That this should take place is not wonderful, when we consider the remarkable sympathy existing betwixt the brain and other organs, and the great vascularity of the brain, as well as its delicacy in children. But however the fact is to be explained, its existence is undoubted. It is highly necessary, in all diseases of children, to watch the safety of the head; and whenever symptoms appear, indicating an affection of that organ, to have recourse to the application of leeches, blisters, and other means, which have been pointed out. Indeed, in all the protracted diseases of children, especially if attended with considerable fever, it will be prudent to shave the head, and apply a small blister upon it. Calomel purges are of great utility.

CHAP. VII.

Of Convulsions and Eclampsia.

Convulsions proceed from various causes during infancy. They very frequently arise from irritation in the bowels, from den-

* Medico Chir. Trans. Vol. IX. Part 2d.

tion, or in the course of eruptive fevers. Sometimes they proceed from immediate affections of the brain itself, and very often they occur in hydrocephalus. They may be distinguished into those proceeding from a primary affection of the brain, and those occasioned by sympathy, with some other organ in a state of irritation. It is not, however, easy to make the diagnosis in every instance; and when convulsions continue long, whatever may have been their origin, the brain ultimately suffers; and if the disease be protracted, the patient becomes emaciated, and perhaps paralytic, or even hydrocephalus may very early be excited.

We may be assisted in our judgment, by examining the gums, especially if the child be about the time of life when teeth appear; by inquiring into the state of the bowels, whether they be loose or bound, or the child be troubled with worms; by learning if an eruption have suddenly disappeared; or if the child have been frightened, or had heavy food, or too much food, or been sucking a woman whose mind had been recently agitated; or if none of these causes be discovered, we should inquire if the child have already had those febrile eruptive diseases, which are often preceded by convulsions, especially small-pox. In at least nine cases out of ten, convulsions proceed from irritation of the bowels; the stools being generally unnatural, or the digestive functions impaired. This observation is of much importance in practice, as it points out both the means of prevention and of cure.

Very young infants are subject to a slight degree of spasms, called inward fits, in which the mouth is, during sleep, drawn into a smile; the eyelids are not quite closed, and the eyes are turned about, so as at times to discover the white; the breathing seems occasionally to flutter, and the child is very easily startled. These fits appear to be occasioned by wind in the stomach or bowels, for they are relieved by a discharge of wind, and require some carminative, such as oil of anise, with a gentle laxative. They generally go off in a short time, but sometimes they are succeeded by vomiting or purging, or drowsiness, ending in convulsions.*

* Dr. Armstrong was the first I believe who called the attention of physicians to this complaint. He has written very elaborately upon it, and deems it much

Some children, very early after birth, appear languid, moan, and pass dark-coloured fæces, different from meconium, and after it, in the usual course of things, ought to be removed. Presently they fall into a state, rather resembling syncope than convulsions, and die perhaps in forty-eight hours after they are born. The early use of calomel, in small doses, conjoined with some gentle aromatic, is proper.*

Others, soon after birth, are seized with a violent fit of crying, and they become more or less distinctly convulsed, and the muscular irritation may repeatedly recur. This is relieved by the warm bath, gentle laxatives, and rubbing the belly with a little laudanum. I have sometimes thought that this state was induced by tying the cord too near the belly, by which an irritation was communicated to the abdominal viscera. Infants of a month old, who are subject to severe fits of crying from colic, which is often induced by bad nursing, may be suddenly carried off by a convulsion after a violent and continued paroxysm of screaming. This state requires great attention to the bowels and to diet.

Regular convulsions may occur at a very early period of infancy, and in this case attack those children who, from the time of birth, have been subject to heavy sleep, or to whine and moan, or to violent screaming, or to start suddenly from their sleep, and who have twisting of the extremities while awake.

Convulsions vary much in their degree and duration. Gene-

more formidable than it is commonly represented to be. Where it is neglected, he says, "it will degenerate into an almost constant drowsiness, which is succeeded by a fever and thrush, or else it terminates in vomitings, sour curdled or green stools, the watery gripes, and convulsions." The antimonial wine given as an emetic is the chief remedy which he has suggested.

Notwithstanding the preceding frightful picture, I cannot help considering "inwards fits" as a very trifling sort of complaint, too trifling, indeed, to get a place among the diseases of infants. That very young children often exhibit the symptoms described by Mr. Burns is undoubtedly true. These, however, will be found to proceed from uneasiness, the consequence of an overloaded and distended stomach. The mild carminatives will generally give relief. But if they fail, the stomach must be emptied by a puke or purge. It is better however to prevent this complaint altogether by a proper regulation of the child's diet. C.

* At this very early stage of life, I would prefer purging with castor oil to calomel. C.

rally the child is seized quickly with a spasm of the muscles of the arms and legs, which are agitated to and fro, the fists are clenched, the body bent back, the features distorted, the eyelids open, the pupils dilated, and the eyes either fixed in the socket or rolled about. The face is either pale or livid. These convulsions may prove very suddenly fatal; but sometimes after the fit has lasted a minute or two, it goes off and does not return. In other cases, it returns very frequently for several days, or at uncertain intervals for many weeks. In general, the longer the fits, and the shorter the interval, the greater is the danger. The occurrence of paralytic symptoms or emaciation, in those cases where fits are frequently repeated, adds greatly to the danger, and generally indicates hydrocephalus. When the child is very much stretched, or bent back, some call the disease tetanus, and give the appellation of eclampsia to the other cases. In many instances, the first symptoms are a kind of wheezing or croupy breathing, immediately succeeded by a general convulsion.

When a child is seized with convulsions, a very great alarm prevails; and it is expected, that if the practitioner arrive before the child is carried off, or has recovered from the fit, very prompt and active means must be employed. The first thing to be done, is to order a warm bath and clyster to be got ready immediately; and while these are preparing, we enquire into the circumstances of the case, and examine the gums. If the child be at the time of teething, and no other cause be discovered, it will be proper to cut the gum freely over that part where the teeth ought, according to the usual order of dentition, to appear, even although no swelling be discovered. Then the child is to be put into the warm bath, the face alone being kept above the water, and he is to be retained there for a few minutes, if the fit do not pass off sooner. If the bath do not give speedy relief, I have seldom found much advantage in resorting to it again, if the fits should be repeated. In some instances the addition of a little hartshorn or mustard to the bath is useful. When the child is taken out of the bath, a cloth is to be applied over the stomach, or great part of the abdomen, wet with strong spirits, and lightly sprinkled with pepper. A clyster is at the same time to be thrown up, so as to operate

speedily; and this is to be followed by a calomel purge, and the subsequent use of laxatives, to keep the bowels open. It may be proper, however, to state to the parents, that it is not unusual for the fit to return, about the time of having a stool. If the child has diarrhœa, if the stools be not natural in appearance, laxatives will still be proper, according to the directions given in considering diarrhœa.* Emetics have also been employed during the fits; but unless we have reason to suspect that some indigestible or improper substance has been taken, they will not be so beneficial as laxatives. But when fits are only apprehended in dentition, from starting, feverishness, and circumstances ascertained by former experience to precede convulsions, a gentle emetic is often of service, and ought to be followed by the warm bath and some antispasmodic, such as asafœtida, conjoined with a laxative if necessary. Tincture of asafœtida, with the addition of oil of anise, is a very useful remedy; or we may give tincture of hyoscyamus with oil of anise. Camphor has been strongly advised, either by the mouth or in clysters, by Stork, but I do not know that it is very useful. I must say the same of musk. When it is deemed proper to exhibit emetics during the fit, a few spoonfuls of a solution of sulphate of zinc may be given in quick succession, as operating speedily and safely; or ipecacuanha may be employed, and the fauces tickled with a feather, to hasten its operation.

If the face be flushed, or the arteries of the neck beat strongly, it next will be proper to apply one or more leeches to the forehead, according to the age and constitution of the child; or if possible to take blood with a lancet from the arm, and avoid stimulants: but if the face be pale, a few drops of the aromatic spirit of ammonia may be given repeatedly. Opium is hurtful when the face is flushed; and even when it is pale, is only useful when there seems to be considerable irritation about the bowels, or from the gums. Oil of rue is strongly recommended by Dr. Underwood; and when the fits are repeated, it will be proper to make use of

* The propriety of giving purgatives in convulsions, when the bowels are costive, or the stools unnatural, is confirmed by experience, and the effects of this course in chorea.

this, or asafœtida, musk, or other antispasmodics. The spine should, in such cases, be repeatedly rubbed with some stimulant embrocation; or oil of amber, and a blister should be applied to the head, after it has been bathed for a time with cold water. I have also found advantage in pouring cold water on the head; at the same time I must observe, that it may, and often does produce paleness, and appearance of alarming collapse, but from this the child has recovered. Smart aspersion of the face, with cold water also tends to shorten the fit. When it is preceded by spasm about the larynx, a blister on the nape of the neck is a useful addition to the free use of purgatives. In all cases the diet must be attended to, and it may even be necessary to change the nurse.

When a child has repeated convulsions, and almost constant moaning and bending back of the neck or spine, the disease is incurable, as it proceeds from water in the head. It may, however, be protracted for several weeks. Repeated small blisters on the head, and the daily use of calomel, may be tried in such chronic cases, but at last the only relief is obtained by opiates.

Children disposed to hydrocephalus sometimes fall down for a few seconds in a state of insensibility, without much or even any spasm. By purgatives and keeping an issue on the scalp the danger is averted.

Trismus nascentium is not a very frequent complaint in this country, but it is not uncommon in warm climates. It makes its attack within the first fortnight of life, very rarely before the sixth day, and has been supposed by some to be connected with a costive state of the bowels, by others with the falling off of the navel string and the state of the umbilicus.* In some instances, the spasm is confined to the jaw, which is rigid and closed; in others it extends to the neck or trunk, which is stiff and bent back. The disease is very fatal, notwithstanding that the warm and cold bath, opiates, purgatives, and blisters have been fully tried. The state of the navel should be attended to, and proper dressings applied, so as to avoid irritation.

* Vide a Paper by Dr. Bartram, in Trans. of Coll. of Phys. at Philadelphia, Vol. I. p. 227., and by Dr. Colles, Dub. Hos. Rep. Vol. I. p. 235.

After the period of infancy is past, and during the time when the second set of teeth are coming out, convulsions are generally of the eclamptic kind, attack suddenly, the patient screaming out as if terrified, and then he falls down convulsed. When the fit goes off, he becomes nearly quite well. These do not indicate that the patient shall be subject, after puberty, to epilepsy. They are relieved by attending to the state of the gums, removing decayed teeth, and cutting the gum over the grinder which is coming out, but especially by keeping the bowels open, which must be done with perseverance in the most efficient way. We thus remove a frequent exciting cause; but we must not confine our attention to the bowels alone, but must inquire whether any other source of irritation exist. Near the time of puberty it may occur in either sex, from irritations which exist at that period, but it is particularly frequent in the female. Sedulous attention must be paid to the bowels; and, as in other cases, we must call in the aid of remedies of a different description. Ol. succini, valerian, sea-bathing, and tonic medicines, as zinc, have been found of service; asafœtida or camphor, given by the mouth, or in clysters, have also been useful. When there is much determination to the head, especially in the first attack, either the lancet or leeches ought to be used. If these means are not successful, an issue ought to be established in the neck. But in obstinate and protracted cases, organic alterations have generally taken place, and the patient becomes fatuitous, a state sometimes preceded by morbid perversity of disposition. This condition of the brain is more apt to take place, if suitable evacuations have not been made early. Bleeding and purging, timeously employed, may be of the most signal service, in preventing organic changes. Eclampsia occurring at the menstrual period, although partaking much of the nature of hysteria, requires the same treatment. Convulsions have sometimes been caused by impure air, and can only, in such cases, be relieved by a removal to a purer atmosphere. This is a fact which it may be of service to remember.

CHAP. VIII.

Of Chorea and Paralysis.

The convulsions called chorea sancti Viti, attack children most frequently from the age of eight years to that of puberty. This disease makes its approach with languor, and dislike to the entertainments of the age; a variable and sometimes very keen appetite; in general continued costiveness, attended usually with a hardness and swelling of the abdomen, especially at the lower part, though occasionally the belly is flabby, and rather small, instead of tumid. Sometimes the bowels are open, but the stools are not of a natural appearance. Presently convulsive twitches and motions of the muscles of the face take place, and are succeeded by more marked convulsive affections of the muscles of the extremities and trunk, so that the patient cannot sit still, nor carry a cup of tea safely to the mouth. These are often almost constant; even when the patient is asleep, the limbs are in motion, and the rest is greatly disturbed. He does not walk steadily, and sometimes seems to be palsied, or the motion may be very rapid, the head shaking like a rattle. The patient is sensible during the convulsive motion. At a more advanced period, the countenance becomes vacant, the eyes dull, the speech is affected, and, in some cases, the patient cannot even swallow without difficulty. Emaciation takes place, and a febrile state may be induced.

A variety of remedies have been tried in this disease, but none with so much advantage as purgative medicines, which have been prescribed with the happiest effect by Camper,* Sydenham, and

* "Having described the nerves, I now come to the symptoms, which are easily explained by their connexion. I will begin with tremour of the feet, which is common in hysterical cases. But I ought in the first place to mention, that the dreadful hysterical symptoms, which we daily see either in individual parts, or in the whole body, are altogether dependent upon the accumulation of acrid matter in the primæ viæ; for the intolerable fœtor, the

Hamilton. These, if given early, and before the disease is fully formed, will very effectually relieve the patient, and at this time they only require to be gentle, and repeated as the state of the bowels may require. But when the disease is confirmed, "powerful purgatives must," as Dr. Hamilton observes, "be given in "successive doses, in such a manner that the latter doses may "support the effect of the former, till the movement and expulsion "of the accumulated matter are effected, when symptoms of returning health appear." Calomel and jalap are useful purgatives in this disease, and Dr. Hamilton is in the habit of using aloetic pills on the days when these are not employed, which is a useful practice when the patient can swallow pills. My own experience leads me decidedly to agree with Dr. Hamilton in the employment of the aloetic pills, which must be given in sufficient number daily, to produce a full effect. Dr. Underwood recommends aloetic and mercurial purges. By these means, chorea is perhaps cured in a fortnight, or, in obstinate cases, within two months. Boys are said to be more readily cured than girls. If no great amendment take place soon, we must not on that account desist, but continue the purging plan for several weeks, and generally we succeed at last. Tonic medicines are useful adjuvants, and in obstinate cases, we must take the assistance of copper, arsenic, nitrate of silver, nux vomica, lactuca virosa, and the other remedies which formerly were chiefly trusted to for the cure of convulsions. The food should be light and nourishing, and due exercise taken in the open air.*

There is a variety of chorea, in which the patient, generally

"scantiness and unnatural appearance of the fæces, always warn us of an ap-"proaching paroxysm of rigours and convulsions.

"Ought not purgative medicines, and even the most drastic ones, to be exhi-"bited? They probably might cure spurious epilepsy, chorea sancti viti, and "other spasmodic diseases, hitherto generally deemed hopeless by medical "men." *Camper on the Pelvis*, Chapter iii. section 7.

* I can bear testimony to the decisive and superior efficacy of active and continued purging in chorea. Two cases of the disease in boys, which had been previously treated for several months by stimulants and antispasmodics, without the least advantage, were perfectly cured by me in a very few weeks, by administering every two days, a powerful purge. C.

a female, has paroxysms of starting, and convulsive contraction of the muscles, particularly after eating, sometimes accompanied with pain in the region of the stomach. When this state has continued for some time, she is seized more acutely with an attack of severe general spasms, in which the whole body feels as if it were cramped. The face is flushed, the pulse frequent, and much weight is felt in the head, but the patient does not become insensible. It participates in its nature with an obstinate spasmodic disease, considered in Chap. 6th, and may attack those who have recovered for some time from that. The acute paroxysm, which may be mistaken for a common hysterical fit, demands the instant use of the lancet, and the application of a blister to the neck; afterwards the usual treatment of chorea is to be strictly adopted. A gentle mercurial course is sometimes of service, and the assistance of varied tonics is not to be neglected. Fœtids are also occasionally serviceable.

When chorea occurs in a child of a family prone to hydrocephalus, we ought, if it do not speedily yield to the usual remedies, to establish a small issue on the scalp or neck, and redouble our attention to the bowels.

Some children are apt to awake during the night, screaming violently, or in great agitation, as if in dreadful terror. This proceeds from a dream, but the imaginary scene continues after awaking; the child, for example, insisting that snakes are crawling along the curtains. This is cured by a smart purgative, given every two days, for some time, and avoiding much supper.

A weak, or even completely paralytic state of one of the superior or inferior extremities may take place, in consequence of a bad state of the bowels, in which case the stools are offensive, and the belly tumid. This is cured by purgatives and friction. But it may also proceed from some slight disease of the brain, or medulla spinalis, though no mark of this can be discovered locally, unless it be that often the head is rather larger than usual. Sometimes one arm appears to be either powerless or weak for many days, and yet otherwise the child is in health. This yields to a purge and friction with oil of amber. In other cases, one leg is long weak, and the child drags it slightly. Whimsical practitioners

have mistaken this for diseased hip-joint, though the bone were precisely the same with that on the other side. It goes off in course of time, and only requires the cold bath and laxatives.

When paralysis occurs, as a prominent symptom, in chorea, or in the sequel of that disease, brisk purgatives are to be employed, along with the hot bath, friction, small blisters to the spine, nux vomica, electricity, &c.

The violent and involuntary jumping, tossing, or dancing, described by some authors, are to be referred to the same cause as chorea. It is not easy to point out a cure, but the disease sometimes ceases suddenly, without any very evident reason.*

CHAP. IX.

Of Croup.

The croup is divided by some writers into two species, the inflammatory and spasmodic; but there is perhaps no case of croup in which muscular action is not concerned, only in some cases the inflammatory symptoms are more prominent than in others. The croup begins with shivering and other symptoms of fever, which, when the child is old enough, can be very well described by him; but in infancy, we discover them by thirst, restlessness, starting, hot skin, and a tendency to vomit. Along with these symptoms, but sometimes even for a day or two preceding them, the child has a dry hoarse cough. Often however, the attack is very sudden, the previous indisposition being short and scarcely observable. The local disease manifests itself by a difficulty of breathing, attended with a wheezing noise; the voice is shrill, the cough is of a very particular sound, somewhat resembling the barking of a little

* A case which occurred in this city is described by Dr. Watt, Med. Chir. Trans. v. 2., and another by Mr. Wood. Ibid. vii. 337.

dog; others describe it as resembling a cough sounding through a trumpet. This barking hoarse cough, however, is of much less importance than the symptom of difficulty in breathing. It is not uncommon for vomiting to attend this cough in the early stage. The pulse from the first is frequent, the patient is restless and anxious, and the face flushed, the eyes often watery and inflamed, and the mouth frequently filled with viscid saliva or phlegm. Very soon, especially in those cases where the face is much flushed, a great degree of drowsiness comes on, from which the child is frequently aroused by the cough, and fits of suffocation, and great agitation; for this disease has exacerbations, during which the heavy sonorous breathing is exchanged for a violent struggle, in which the child makes a crowing noise, and if old enough, starts up, and clings instantly to the nearest object, and stares most piteously. If the disease be more mild, the face in this remission is sometimes pale, otherwise it is flushed, and before death it assumes a blue or purple colour, whilst the lips become livid; in the early stage they may be rather pale. If it do not prove suddenly fatal, the face and lips become tumid in the progress of the disease. Convulsions sometimes succeed the cough.

The duration of the complaint is various; in some cases it proves fatal in a few hours, in others not for a week, but most frequently in a day or two. Much depends, in this respect, on the degree of inflammation, the violence of the spasm, and the strength and constitution of the child. Sometimes there is much more of spasm than inflammation in the disease, in which case we have less fever, less permanent dyspnœa, and less frequent cough, but the attacks of suffocation are not milder. Those cases end best, where the breathing is least sonorous, the fever most moderate, the cough early attended with expectoration, and the symptoms seem at times to become so slight as to constitute intermission.

Dissection has occasionally discovered, on the inside of the larynx, a lymphatic incrustation, or layer of membranous-looking substance, which is sometimes coughed up in considerable portions. This, though it adds greatly to the danger and distress of the patient, is not to be considered as the cause of the disease: for it is merely an effect of inflammation, which, together with spasm, could pro-

duce all the symptoms without its aid. If the disease do not prove very rapidly fatal, the lungs are found to be inflamed, although there was no pain felt in the chest.*

The most frequent cause is the application of cold and damp. Infants under six months are not often seized with this complaint, but from that period to the age of puberty are obnoxious to it.† They are peculiarly liable to it soon after being weaned.

From the nature of the disease, blood-letting evidently is the appropriate remedy, and the most ample experience has now convinced me, that it is the only one on which, in such cases, dependance can be placed. There are two facts, however, which I wish earnestly to impress on the reader. The one is, that this remedy is only useful in the very commencement of the disease; for if it be neglected until the symptoms become very severe, and more especially till they have lasted for many hours, it only increases the suffocation, and hastens death. The other is, that the blood ought to be taken at once from the arm, by a lancet and not by leeches. I am not prepared to determine, that leeches applied to the throat itself, are of no avail; and, therefore, when a vein cannot be opened, this is the practice to be adopted. But I am quite at liberty to pronounce, that leeches applied to a distant part, as, for instance, to the foot, are worse than useless; and the practitioner who advises or acquiesces in this application is guilty of a great crime. In a disease so formidable as croup, it is not to be expected that any remedy shall be uniformly successful; and, therefore, I am not surprised, that venesection may have fallen into discredit; but I would wish to learn from the practical physician, what remedy has proved more beneficial, or better deserving of confidence.‡

* A pretty good epitome of the symptoms, causes, and treatment of this disease, up till the year 1808, will be found in the tract of Schwilgué.

† Croup sometimes occurs even among people of advanced age. Cases of this kind have been repeatedly noticed by different practitioners in this country. C.

‡ During the growth of the body, the fluids, and especially the blood, in relation to the solids are larger in quantity, as is distinctly shown by a variety of circumstances. This fulness of their vessels, and the greater excitability of their

Emetics have been greatly recommended by some, whilst others have little faith in their utility. I have sometimes observed great benefit from them, if employed very early; and would advise them to be given in every instance. Even in the advanced stage of the disease, emetics do much service, appearing mechanically to remove the lymphatic membrane. Decoction of seneka, and preparations of squills, have been used to assist the expectoration of the membrane, but they do not equal emetics for this purpose.

Antispasmodics have been trusted to, almost exclusively, by many; but I apprehend that their exhibition ought to be confined to a different disease, which I shall immediately notice.

systems, render children peculiarly liable to inflammatory affections. Nearly all their diseases partake in some degree of this character. It follows, therefore, that they require oftener to be bled. My own experience, confirmed by that of other practitioners, has perfectly satisfied me, that blood-letting may be used with as much safety, and decidedly with greater advantage in the complaints of children, than in those of adults. If too, they do not at the time bear the loss of blood better, they undoubtedly recover much sooner from its effects. The prejudice against bleeding in children seems to have arisen out of the too prevalent opinion, that owing to an extreme delicacy and frailty of constitution, they cannot bear any vigorous impression. As a natural consequence of this opinion, the general practice in their complaints is extremely feeble, exactly, indeed, of that kind which has been facetiously described as observing a strict neutrality between the patient and the disease, neither declaring for the one nor the other. By no narrow nor partial observation, I am thoroughly persuaded that the very contrary of this opinion is true. Children, I have remarked, display an uncommon *tenacity of life*, and strength of constitution. They often survive under circumstances which destroy adults. They have been found living at the breasts of their mothers who had perished by exposure to cold. They resist contagion better than adults, and when attacked, more certainly recover not only from contagious diseases, but from all others, if properly treated. They also sustain better the operation of the most active remedies, namely, of vomiting, purging, sweating, and blistering; and, I may repeat, BLEEDING. These superior vital energies give, moreover, to children very extraordinary *recuperative powers*.

Children recover confessedly, more speedily from wounds and injuries, and surgical operations. They likewise recruit more rapidly after being reduced either by disease, or by remedies. While there is any indication or life, however discouraging the appearances may be, I never consider the case of a child in an acute disease as altogether desperate. But still retaining some hope, I continue to administer to the restorative principle of the constitution. C.

Blisters applied to the throat are useful remedies, and should not be neglected. The warm bath is also of service.

Calomel would appear to be a powerful remedy in this disease, and, if given early, it will frequently save the child. I do not, however, recommend it to the exclusion of other remedies, with which it is by no means incompatible. The early detraction of blood, followed by an emetic, and the subsequent use of calomel, will afford the greatest hope of removing the disease. But I think it my duty to state, that in some cases no alleviation was obtained by any remedy but the calomel; and in others it was trusted to alone, and with success. To an infant of six months, a grain and a half of calomel may be given every hour, until it purge freely; to a child a year old, two grains; and to one of two years, sometimes even four grains are given every hour, until the bowels are acted on, and the child purges freely or vomits repeatedly. The stools are generally green in colour, and their discharge is usually accompanied with an alleviation of the symptoms. When this is observed, the dose must be repeated less frequently, perhaps only once in two hours for some time, then still seldomer, and finally abandoned. Should the child be greatly weakened, either by the disease or the medicine, the strength must be afterwards carefully supported by nourishment and cordials. It is astonishing how great a quantity of calomel is sometimes taken in a short time, without affecting the bowels, or purging violently afterwards. Occasionally above 100, and often 50 or 60 grains, are given in this disease. Salivation is not produced in children.*(n)*

That excellent and experienced practitioner, Dr. James Hamilton, jun. to whom we are chiefly indebted for the introduction of the use of calomel in croup into this country, from the practice of Dr. Rush,* is extremely unwilling to bleed children freely in their

(n) This assertion may be considered as generally correct, but notwithstanding, instances have occurred of salivation being produced in children by mercury; and when this is unfortunately the case, it is apt to be attended with the most unpleasant symptoms, sometimes threatening gangrene, and requiring the most assiduous care and attention of the practitioner.

* Mr. Burns has erroneously ascribed to Dr. Rush the credit of introducing calomel in the treatment of croup. As far as I have been able to ascertain, it was

diseases, from its subsequent debilitating effects; and in croup, begins at once with the calomel, after having used the warm bath. He observes, that "in every case where it was employed previous to the occurrence of lividness of the lips and other mortal symptoms, (amounting now to above forty) it has completely succeeded, both in curing the disease, and in preventing any shock to the child's constitution." He adds, that he has now seen two cases, where, although the croup was cured, the patient sunk from weakness; and therefore very properly gives a caution to stop the calomel, whenever the symptoms begin to yield. The alleviation, in true croup, follows the discharge of dark green stools, like boiled spinage; in spasmodic croup, it takes place whenever vomiting has occurred. When much debility is produced, he, besides using cordials, applies a blister to the breast. I have a high opinion of the efficacy of calomel, but I cannot speak by any means so strongly as Dr. Hamilton; for even when it was early, pointedly, and exclusively employed, and brought away green stools, I have known it fail; and deem it my duty most earnestly to caution the reader against trusting to it exclusively: at the same time I must add, that I have known it procure recovery from very desperate cases, even without evacuation by stool; and when, after a great quantity of calomel was given, and relief obtained, it was necessary to open the bowels by clysters. In those who are old enough to express their feelings, we generally find that relief is not obtained, till the medicine gripe, as well as purge. Whether it have any power in positively diminishing inflammation, or act principally, if not entirely, by relieving that part of the disease which is muscular or spasmodic, is not determined; but I am inclined to the latter opinion, as it is not of much efficacy in the laryngitis of adults. Calomel has been combined with ipecacuanha to produce vomiting, but I cannot satisfy myself that I have ever seen this combination do more good than either of the medicines would have done singly.

first employed in this disease about forty years ago, by Dr. Kuhn of this city, to whom the practice of physic is indebted for some of its most valuable contributions. C.

In cases otherwise hopeless, it has been proposed to perform the operation of bronchotomy, and it is justifiable on every principle both of science and prudence. Assuredly we would not wish rashly, or too early, to have recourse to this operation, but it is as improper to delay too long. If relief be not early obtained by the vigorous means I have advised, and more especially, if these have not been employed, and the disease have run on with little effectual check, we are too well warranted in saying that death must be the result. If this arise from the mere existence of inflammation of a sensible or vital part, acting by sympathy on the system, as that of the lungs or stomach would do, then an operation, as it cannot remove that, would do no good. But if it proceed not altogether from this source, but in a great measure from the effect produced on respiration, and the organs concerned in that function, rational hopes may be entertained, that if we can obviate this immediate and urgent effect of the disease, time may be allowed for the subsidence of the complaint. This seems to be the state of the case; and, if it be not early adopted, the risk is increased by the tendency which exists to the induction of inflammation of the lungs; and, independently of this, by the debility produced by the continuance of the disease. Parents naturally recoil from an operation, and practitioners too often shrink from responsibility. Let such timid people bring forward the opinion of Dr. Baillie, and the conduct of eminent men in our profession, as a shelter from reproof, if they fail; and, above all, let them solace themselves with the gratifying reflection, that if they have not succeeded, they at least have done all that skill could suggest or art accomplish. One of the earliest successful cases of tracheotomy, in this disease, is that of the boy, five years of age, operated on by Mr. Andree.* Another boy, two years older, was operated on by Mr. Chevalier, on the afternoon of the third day, when venesection and other means had been tried in vain. His breathing was difficult, his pulse 160, countenance livid, he was covered with cold sweat, and although still sensible, was evidently sinking. On dividing two rings of the trachea, one ounce and a half of frothy

* Med. Chir. Trans. Vol. III. p. 335.

coloured mucus were discharged. Next day his pulse fell to 144, and in the same evening the breathing became easy. The third day he coughed up some tough mucus, and soon recovered.* In this case surely the operation was too long delayed, if it were at all in contemplation. Far, indeed, be it from me to make this remark with a view to blame the operator, who is strongly to be praised for performing it at all, with so little encouragement before him. But I make it with the hope of others profiting by the case, and being excited to a still earlier operation, where circumstances indicate that there is no other probable alternative but that of death. There is no occasion for employing a tube after this operation.

Spasmodic croup, or acute asthma, is often, but not necessarily connected with inflammatory croup. There is, perhaps, no case of the latter disease unattended with affection of the muscles of the larynx, but there are many cases of this affection without inflammation; yet if it continue long, there is a great risk of inflammation taking place, and of a membrane being formed. The spasmodic croup attacks children chiefly, but it may also affect women, especially about the age of puberty, and harass them occasionally for many years afterwards. It makes its attack very suddenly, generally at night, and sometimes for many nights in succession, especially if the child be agitated, or the mind of the young woman anxious respecting it. The patient breathes with difficulty, and with a wheezing sound, has a hard barking cough, with paroxysms of suffocation, as in inflammatory croup. The extremities become cold, the pulse, during the struggle, is frequent, but in the remission it is slower; and if the remission be great, it becomes natural, unless kept up by agitation. There is little or no viscid phlegm in the mouth, some drowsiness, but more terror, and the eye stares wildly during the paroxysm. The disease is often suddenly relieved by sneezing, vomiting, or eructation. It differs, then, from the inflammatory croup, in the suddenness of its attack, in there being little fever, but only quickness of pulse, greatly abating when the child does not struggle for breath; less

* Med. Chir. Trans. Vol. VI. p. 151.

drowsiness, and little phlegm about the mouth. The cough is less shrill, and the fit often goes off suddenly and completely, either spontaneously, or by the use of the remedies acting quickly. Sometimes, however, even in adults, inflammation takes place, and this disease is, in infants, very readily converted into true croup.

It is at times brought on by exposure to cold, and in that case, it is occasionally preceded by slight sore throat, or hoarse cough; but oftener the spasm comes on without any precursory symptoms, and seems to arise sometimes perhaps from direct affections of the origin of the eighth pair of nerves, but much more frequently, almost always, from irritation or injury dependant on abdominal disorder. The recurrent of the eighth pair seems to be often chiefly affected; and when we call the disease spasmodic,* we probably are often wrong; its nature, being, in many instances, rather a temporary paralytic state of that nerve, or, at least, a condition unfitting it for its function, and the *modus operandi* of emetics may be to excite the nerve. Bleeding, on the other hand, relieves the cerebral affection, or state of the origin of the nerves. I have, in a former chapter, noticed this symptom, in a particular and very obstinate affection dependent on abdominal disorder; and am inclined to think, that a great majority of cases of croup, in infants, are of this description at first, and that inflammation is only an effect. The drowsiness which often attends this complaint, is owing to the affection of the base of the brain, which is thereby produced, and which might prove fatal independently either of laryngeal spasm or of the inflammation. Sometimes this disease is excited by dentition, or, if the patient be older, by passions of the mind. Not unfrequently a renewal of the disease is excited, in those who are subject to it, by eating a full meal in the evening.

* I retain the name of spasmodic croup, both because it is generally received, and as it is probable that spasm may in certain cases be the cause. There, however, is often a mistake made, by considering the contraction of one set of muscles produced by torpor or paralysis of the antagonists, for spasm: and it is this kind of contraction which often takes place in croup, and produces doubtless the same feeling and effects as spasm. Inaction of both sets of muscles about the glottis, would have the same effect. Where the recurrent is cut, the rima closes, and the animal dies.

With regard to the treatment, I shall briefly state the result of my observation. In young girls, venesection has uniformly given relief, the spasm suddenly abating, and very soon going entirely off, after a certain quantity of blood has flowed. Topical blood-letting has not the same effect, and indeed is nearly useless. But if the paroxysm should be repeated for many nights, venesection cannot be employed on every attack, as it debilitates and predisposes to the disease. Emetics, such as sulphate of zinc, or ipecacuanha, have the effect of abating, and occasionally of removing the paroxysm, but not of stopping it so soon, and so suddenly and entirely as blood-letting. They debilitate less, however, and may be oftener repeated. In this species, and in the commencement of inflammatory croup, they act probably through the eighth pair of nerves, or the recurrent, which is much affected; but sometimes the fit, though impeded during their operation, returns, and in such cases has yielded to venesection. When the emetic has been very long of operating, the stomach not being easily acted on, blood-letting has produced speedy vomiting and immediate relief. Opiates, and antispasmodies, such as ether, given in large doses, have, if exhibited in the very commencement of the attack, sometimes checked it, but have not always that effect, and, if not given soon, are longer of procuring relief. Calomel, in croup affecting girls and women, is out of the question; for the paroxysm is so severe, that we cannot and must not trust alone to its operation.

A relapse is to be prevented by giving purgatives, and avoiding exposure to cold damp air. When the paroxysms return every night, or every second night, there is strong ground to suspect that the bowels are in fault. Aloes, combined with a little calomel, or with the mass of the blue pill, ought to be given so as to operate freely and effectually, and we are not to relinquish this plan, because it does not immediately cure the disease. In young girls, a course of tonic medicines alone, or combined with asafœtida or valerian, will be useful; and when the attacks have been kept off for some time, sea-bathing will be proper.

With infants we generally succeed, by giving instantly an emetic, and afterwards calomel in considerable doses, so as to produce sickness and vomiting, or free purging. But if the emetic do not

decidedly and immediately mitigate the disease, then, in place of trusting solely to the calomel, we premise venesection. Asafœtida* has been strongly recommended in this disease, and has sometimes a very good effect. The warm bath is also useful. If the child be about the period of dentition, the gum should be examined, and cut if tumid. If the disease do not soon yield to these remedies, there is ground to suppose that it will be converted into the other species of croup; but this affects the prognosis rather than the treatment.†

* Dr. Miller has given an ounce of this gum to a child of eighteen months old in forty-eight hours, and almost as much at the same time in form of clyster. His formula is as follows: R. G. asafœtidæ, ʒii, Spt. Mindereri, ʒi, Ap. puleg. ʒiii M. s. a. A table spoonful of this is to be given every half hour. Vide Observations on Asthma, p. 43.

† The practice recommended by Mr. Burns is nearly the same as that which prevails in this country. Though the distinction of inflammatory and spasmodic croup is undoubtedly well founded, yet I am not aware, that it leads to any practical difference. My mode of treating this disease is as follows. I begin by endeavouring to puke the child very freely, and for this purpose I commonly employ the tartarized antimony, given at short intervals, as being one of the most certain and powerful of the emetics. At the same time I direct the child to be put into the warm bath for ten or fifteen minutes. This is a useful remedy. It rarely fails to promote the operation of the emetic, and will, indeed, alone, sometimes cure the disease. If, however, the emetic does not operate, or if after its operation, the anticipated effect be not realized, I then bleed copiously, and repeat the bath and the emetic. The attack must be extremely obstinate if it do not now yield. Nevertheless, it will occasionally continue with little or no abatement. Under these circumstances, I resort to topical bleeding, either by leeches or by cups, and afterwards, if necessary, apply a blister, or sinapism of mustard to the throat; extending from ear to ear. If the preceding remedies fail, or the symptoms be so alarmingly violent as to demand immediate relief, I bleed *ad deliquium animi*. When pushed to this extent, I may almost say that blood-letting in these cases is invariably successful. I learnt this practice from two of the most distinguished physicians of our country, who seem to have employed it nearly about the same time. I allude to Dr. Belville of Trenton, and Dr. Dick, of Alexandria. After the force of the disease is broken, which is shown by the alleviation of the hoarseness, and of the difficult respiration, and above all by the restoration of the natural susceptibility of the system to the action of medicine, I administer calomel, not in small and repeated doses as is more generally advised, but in the largest possible dose, in order that it may speedily and most actively purge. In this particular stage of the disease, a thorough opening of the bowels carries off the lin-

Some children are subject to slight wheezing, continuing for a day or two, with intermissions, and accompanied with a hoarse cough, but without fever. Emetics, laxatives, and a large burgundy pitch plaster, applied to the back, remove the disease.

Infants during dentition are subject to sudden attacks of spasm about the windpipe, producing a temporary feeling of suffocation with a crowing sound, but there is no hoarse cough. It is apt to take place suddenly at night, or when crying. It is relieved by giving a combination of tincture of asafœtida, and of hyoscyamus, and using laxatives. The warm bath is also useful. The gum should be cut.

I have, in the seventh chapter, noticed the spasmodic breathing, which is complicated with convulsions. Some children, very nearly from the time of their birth, have a constant wheezing or sonorous breathing, subject to exacerbation. This does not indicate the existence of an organic affection, for I have known it removed by change of air.

Besides these affections, ending acutely, there are others which produce more slow effects. The parts about the larynx inflame, and this may doubtless cause speedy death, by suffocation; but in other instances, necrosis of the cartilages, or abscess, or ulceration take place, and the patient is thrown into the disease called laryngeal phthisis. This is to be prevented in the outset, by vigorous

gering symptoms, obviates a relapse, and confirms the convalescence. But if cough, or hoarseness, with tightness of the chest and deficient expectoration remain, I employ the decoction of the polygala senega as *an expectorant*. It is in extinguishing the remains of croup that it displays, I think, its best properties. Doubtless, however, it may be used at an earlier period of the disease with advantage as an emetic. But still I prefer the emetic tartar. I have recently heard that croup has been very successfully treated by a watery solution of corrosive sublimate, by large quantities of melted lard or olive oil given internally, and by common mustard in the state in which it is used at our tables. Of the latter, a tea-spoonful is given to a child, to be repeated if required. Its operation in spasmodic croup especially, is represented to be most decisively useful. I have not tried, nor am I disposed to try any one of these remedies. They each come to me, however, recommended by very respectable authority. With the remedies already known to me I rest satisfied. These in my practice have rendered croup the most curable of all the violent infantile diseases. C

antiphlogistic treatment; but when it takes place, if issues do not give relief, we have only to consider the probable effects of laryngotomy.

The œdeme de la glotte, described by the late M. Bayle,* is merely laryngitis.

CHAP. X.

Of Hooping-Cough.

The hooping-cough often begins like a common cold, the child coughing frequently, and having more or less fever. In some cases the fever is slight, going off in the course of a week; in others very severe and long continued, attended with great oppression, or sickness, and want of appetite. The cough generally comes on very abruptly, and is sometimes early attended with that sonorous spasmodic inspiration, denominated hooping; in other cases, not for a considerable time, and this is considered as a favourable circumstance, but it is not always so, for in young children, death may take place, although the disease never fully form. The fits are generally most frequent, and most severe during the night. When the cough becomes formed, the paroxysm consists of a number of short expirations, closely following each other, so as to produce a feeling of suffocation, relieved at last for an instant, by a violent, full, and crowing inspiration; then, in general, the cough or spasmodic expirations recommence, and the paroxysm, consisting of these two parts, continues until a quantity of phlegm is coughed up or vomited, alone, or with the contents of the stomach, and this ends the attack. The expirations sound like a common cough, but are more rapid, and frequently repeated as in violent laughing. Sometimes the sound is lower, or the cough resembles the chattering of a monkey, quickly repeated. These

* Journ. General, Avril, 1819.

paroxysms vary in frequency and duration. Sometimes they are slight; at other times, and especially during the night, they are attended with a most painful sensation, and appearance of suffocation, the face becoming turgid and purple, the sweat breaking, and blood gushing from the nose or other parts. The extremities become cold during the fit, and the whole frame is much agitated. But even severe as the paroxysms are, if the disease be not attended with fever, the patient seems quite well after the fit, and begins to eat with a renewed appetite. A fit of crying, will, at times, even after the disease has been apparently removed, excite the cough. The features often remain swelled for a considerable time.

Hooping-cough is very dangerous for infants, as they often die suddenly in a fit of suffocation; elder children escape more safely, though even they are sometimes carried off, the fever continuing, or anasarca coming on, with exhaustion. Sometimes the lungs become diseased, and hectic fever takes place, or peripneumony is produced, or the lungs become œdematous. Convulsions may also occur, and carry off the child.

Many remedies have been employed in this disease, which it will be proper to divide into those intended to abate the fever, and those given to relieve the cough. Venesection has, for the first of these purposes, been recommended; but it is very rarely requisite, and only when the patient is plethoric, and we apprehend that some vessel may burst in the lungs from the violence of the cough, or when there are symptoms of inflammation. Leeches may in these circumstances be applied to the chest. The most generally useful remedies are laxatives and the saline julap, which often in a few days moderate the fever greatly. The tepid bath is useful, and if there be much irritation and restlessness, hyoscyamus sometimes does good.

For the relief of the cough, nothing is so beneficial as emetics. These have been given in nauseating doses, so as to make vomiting be readily excited by the cough; but, in general, a full dose of ipecacuanha will be as effectual, and is less distressing. At first, the emetic should be frequently repeated, especially to infants, perhaps once a-day, or once in two days, according to circumstances; and this degree of frequency is by no means injurious.

Antimony has been highly praised by many, but it is more apt to weaken the stomach, and in very young children it sometimes produces violent effects. Stimulating substances, such as a combination of soap, camphor, and oil of turpentine; or juice of garlic, or oil of amber, or of thyme, &c., rubbed over the spine, or the thorax and the stomach, have a good effect; and similar applications to the soles of the feet have certainly in some cases done much good. Antispasmodics, such as asafœtida, ol. succini, musk, &c., have been recommended, and in some cases are successful. Opiates are also of service. Dr. Willan says, that he found the watery infusion of opium more useful than any other narcotic. When the disease is protracted, cicuta has been recommended, but it does not seem to have any advantage over opium or hyoscyamus. It has also been applied externally. Lactuca virosa, has also been employed. The most effectual remedy, however, is change of air, which often has a marked effect on the disease, in a few hours. When the patient becomes restless, and coughs more, it should again be changed. The diet ought to be light. If there be fixed pain in the chest, difficulty of breathing, and fever indicating inflammation, either venesection or leeches, according to the age and circumstances of the child, will be absolutely necessary; but our evacuation must be prudently conducted. Blisters and digitalis in such cases are useful. Pain produced merely by the violence of the cough, remitting or going at times entirely off, and generally seated about the upper part of the sternum, is relieved by those means which relieve the cough. When the paroxysms have been very severe, the breathing oppressed, the cheeks livid, and the pulse very weak, some children have been saved by the application of leeches to the chest, blisters and small doses of the compound powder of ipecacuanha.

When the patient is threatened with hectic, or becomes emaciated and weak, nothing is of so much benefit as country air and mild diet, at the same time that we keep the bowels open. Blisters should be applied to the breast, if there be fixed pain or dyspnœa. If there be anasarcous swelling, the digitalis, conjoined with cordials, will be useful.

Convulsions sometimes are excited by the fits, or occur at the

same time with them, and immediately suspend the cough. They are very alarming, and may suddenly carry off the infant, especially if he be very young. The child should instantly be put into a warm bath, which is to be repeated as often as the convulsions come on. The bowels should be opened, the head shaved and blistered. If the fits be repeated, and if the child be plethoric, leeches ought to be applied to the temples. The air ought also to be, if possible, immediately changed. In some cases, tincture of hyoscyamus given in a mixture, or clysters containing camphor, seem to allay the tendency to spasm; and in every instance, it is proper to rub the back and belly with anodyne balsam.

If the cough return after it has gone off for a time, a gentle emetic is the best remedy.* A sudden change of weather from warm to cold, is very apt to renew the cough. If the face or lips remain swelled, gentle laxatives are proper.

During the continuance of the disease, the diet must be light, but nourishing, if the patient be weak; but more sparing at first, if he be, on the other hand, plethoric, and inclined to inflamma-

* Like most other contagious diseases, the hooping-cough will run its course in spite of all our exertions to cure it. We can, indeed, do little more than mitigate the more violent symptoms. Among the best of the palliative remedies is a watery solution of asafœtida. Where the cough is attended, as is sometimes the case, with convulsions, the sulphate of zinc may be given with advantage. A combination of the salt of tartar and cochineal, said to have been originally suggested by Dr. Pearson of London, has lately become a very *popular* remedy in this city. This, however, is not the prescription of Dr. Pearson. His is as follows:

R. Carbon. sod : gr. iii.
Vin. ipecac. gtt. v.
Tinct. theb. gtt. i.
Aq. font. ʒj.

To be given to a child a year old every three hours. I have tried both the alkalies but with little success. I am sure that the above mixture derives its efficacy, if it have any, from the laudanum and ipecacuanha which it contains. The tincture of cantharides, united with the decoction of bark and elixir paregoric, has been highly extolled by Dr. Lettsom. I have no experience with it. Emetics, on the whole, I think are our best means in this disease. They should be given in the first stage of it, and be repeated at least once a-day whilst the violent symptoms continue. Bleeding and blisters are occasionally useful. C.

tion. Toward the conclusion of the disease, bark and tonics are useful to re-establish the health.

There is cough very like hooping-cough, and which gives rise sometimes to the groundless fear that the child is going to take that disease; or on the other hand, if somewhat prolonged, it may pass for hooping-cough; and afterwards the child being exposed to infection, takes the disease, and is said to have had it twice. This kind of cough has less of the suffocating appearance than the hooping-cough; the expirations are fewer, and do not follow each other so quickly, and the inspiration is not performed so rapidly, and with the distinct hooping sound. It sometimes succeeds measles, or appears as a kind of influenza. It is cured by an emetic and anodynes.

CHAP. XI.

Of Catarrh, Bronchitis, Inflammation of the Pleura, and of the Stomach and Intestines.

Infants are subject, as in after life, to catarrh, either common or epidemic. It is attended with fever and inquietude, redness of the cheeks, watery discharge from the eyes and nostrils, disposition to sleep, frequent, and sometimes irregular pulse, panting and shortness of breathing, with frequent cough, which, however, is not severe. It generally goes off within a week, by the use of gentle purges, blisters, antimonials, and, if the fever be considerable, leeches applied to the breast. A hoarse barking cough is cured by an emetic, and wearing flannel round the throat.*

Bronchitis is far from being an uncommon disease of infants.

* Blood-letting, and that profusely, is very often required to cure the catarrh of children, in this country. As it appears here, it is generally a highly inflammatory disease. C.

It sometimes takes place very early after birth; in other instances not for several weeks. It begins with cough and pretty copious secretion of mucus or phlegm, which, however, the child will not allow to come out of the mouth, but swallows. The cough is frequent, but not uniformly so, coming on in paroxysms. It is of a stifled sound, and somewhat hoarse, or occasionally even shrill, from slight inflammation at the top of the windpipe. The breathing is oppressed or rattling, but not permanently so. Vomiting is also not an uncommon attendant; the epigastrium is distended, the stools are generally bad, the face is pale, and the child sick and oppressed. He takes the breast, but dislikes all meat. Presently, if death be not produced by the accumulation of phlegm, the secretion becomes more of a purulent appearance. The respiration is more oppressed, and the noisy breathing is more frequent. The hands, but especially the feet, swell a little, whilst the body becomes emaciated. The cheeks are occasionally flushed in the evening, and the pulse, which was always frequent, becomes still more so, and irregular. The fits of coughing are severe, and attended with appearance of suffocation, and at last the child dies. On opening the body we find the ramifications of the trachea filled with purulent-looking matter, and in some parts there is an approach towards the formation of tubercles. The lungs are sometimes paler than usual, in other instances more solid.

This is a very obstinate disease, but it does not prove very rapidly fatal. In the commencement it resembles common catarrh, and requires the same treatment, purgatives, venesection, and a blister, which ought to be promptly employed. In the advanced stage, and under various circumstances, I have tried emetics, blisters, calomel, and expectorants, but without decided benefit. Blisters, with calomel, combined with ipecacuanha, to act both on the bowels, and also as an expectorant, together with a removal to the country, appear to constitute the best practice. I think it right to mention, that though the pectoral disease may be slight, yet by the sickening effect of a purgative, especially castor oil, great panting, paleness, and other appearances of danger, have been produced, which have all gone off after having the bowels opened freely by a clyster, which brought off the purgative.

Inflammation of the pleura is more frequent with children than many suppose. The skin is very hot, the face flushed, the pulse quick, the breathing short and oppressed; there is a cough, aggravated by crying, by motion, and by laying the child down on bed. He is likewise more disposed to cough, and is more uneasy on the one side than on the other. If not relieved soon, the breathing becomes laborious, the extremities cold, the cough stifling, with rattling in the throat and stupor; or the pulse becomes irregular and intermittent, the extremities swell, the countenance is sallow or dark-coloured, the breathing difficult, with short cough, and frothy expectoration, which oozes from the mouth. On inspecting the chest, the inflammation is sometimes found to have terminated in hydrothorax, oftener in adhesions. This disease requires venesection, or the early application of leeches to the sternum, according to the age and constitution of the child; the use of blisters, calomel, purges, and the tepid bath. Antimonials and digitalis are also sometimes of service.* In the last stage, diuretics are proper, especially a combination of squills and digitalis, whilst the strength is to be supported by the breast milk, or light diet.†

This disease sometimes terminates in abscess and purulent spitting, with hectic; but much more frequently, the pulmonary consumption of infants and children begins, as in adults, more slowly, is marked by a short dry cough, flushings of the face, frequent small pulse, difficult breathing, wasting, and nocturnal sweats.(*o*)

* This disease is to be treated exactly as pleurisy in the adult. If the attack be violent, the child will probably require to be bled two or three times. Blisters should not be applied till the disease is somewhat reduced. Previously, they always do injury. The pulse here, will be one of our best guides. C.

† The decoction of the senega snake root is an admirable remedy in this stage of the disease. C.

(*o*) It may be proper here to observe, that the infantile cough above described by our author is often dependent on a scrofulous diathesis of the system; this is very fully illustrated and explained by Dr. Parrish, in an interesting paper, inserted in the Eclectic Repertory for January, 1812, entitled, "An Account of the Appearances on Dissection of several scrofulous subjects, with a few observations on the connexion between scrofula and phthisis pulmonalis." Dr. Parrish has denominated the disease *scrofula interna*, and has found by an accurate examination after death, that not only the abdominal viscera and the lungs are

The expectoration is generally swallowed, but sometimes it is rejected, or it is vomited up, and is found to be purulent. There is seldom any cure for this state; all that can be done is to send the child to the country, apply small blisters to the breast, keep the bowels in a proper state, give a mixture containing opium and diuretics, and support the strength with suitable nourishment. If the expectoration be only phlegm, then, although all the other symptoms be present, there is considerable hope of saving the child. But if it be purulent, and the parents are consumptive, the danger is much greater. This state, however, does not in general succeed pleurisy. It is generally induced more slowly, by tubercles, accompanied with enlargement of the bronchial glands.*

Inflammation of the stomach is not a common disease of infancy, nor is it discovered without considerable attention. There is great fever, frequent vomiting, the mildest fluid being rejected soon after it is swallowed, the throat is first inflamed, and then covered with aphthæ, which spread to the mouth. The child cries much. The region of the stomach is full and very tender to the touch.

occasionally affected with scrofula, but that even "the heart itself is subjected to this destructive malady." In these cases he supposes that a metastasis, or a translation of scrofula from the external to the internal parts may take place, and that by endeavouring to produce a reverse effect, the internal disease may be palliated or cured.

From the decided effects produced by the discharge from blisters on each side of the thorax, in checking the progress of the cough, dyspnœa, &c. he thinks it would be eligible at the very commencement of the disease, to endeavour to produce tumefaction and suppuration in the glands about the neck and on the thorax, near the axilla, where external scrofula is generally seated. "Would this attempt, he asks, to excite disease in these parts which [if the expression is allowable] external scrofula chooses for its seat, be more irrational than the application of sinapisms to the lower extremities in irregular or retrocedent gout?" Hence, he seems inclined to think, that the use of setons and issues, have fallen too much into disuse. We would recommend to the student, the attentive perusal of this paper, as justice cannot be done to it in the short and imperfect abstract of a hasty note.

* Although it is not exactly connected with my present subject, I may mention, that sometimes the bronchial cells are much enlarged, the child has cough and difficult breathing. The air escapes, and passes from the root of the lungs to the mediastinum, insinuating itself betwixt its layers, and thence to the neck, where it produces emphysema. Punctures ought immediately to be made.

The bowels are generally loose. If the child be old enough to describe the sensations, he complains of heat or burning about the stomach and throat; if younger, it is known by the incessant crying, fever, thirst, with constant vomiting, and increase of crying on pressing the abdomen. It is not necessary to be too minute in drawing the distinction, between inflammation of the stomach and enteritis, as they both require the same treatment, and I have seen both prove fatal in a few hours. There is sometimes, from the first, a cough and short breathing, but the constant vomiting shows the disease to be in the stomach. It is not easy to say what causes this, for it cannot always be traced to acrid or stimulating substances swallowed. It is proper immediately to bleed, or apply leeches to the pit of the stomach, according to the age and strength of the child; then a blister is to be applied, and stools are to be procured by clysters and afterwards by mild laxatives. Fomentations and the warm bath are also useful. M. Saillant recommends the juice of lettuce,* to be given in spoonfuls every hour, but I do not know any advantage this can have over mucilage and opiates.†

There is another state of the stomach, which, from the softness of the texture, is apt, after death, to be confounded with gangrene. There are, however, no marks of inflammation; but the stomach seems as if it had become so soft by maceration, that it gives way on being handled. This state is sometimes confined to one part of the stomach,‡ sometimes it extends even to the small intestines, and more than one child in the same family have died of this dis-

* The juice of lettuce is a very powerful anodyne. By inspissation an excellent opium may be procured from it. If it be useful in the above disease, it is probably owing to its anodyne property. C.

† In all cases of this affection, except very slight ones, bleeding is indispensible. Inflammation in any portion of the alimentary canal runs very speedily to gangrene, which can only be avoided by a pretty free use of the lancet. The pulse here, as in many instances, is a very fallacious guide. We are not to expect to find it much altered. In general, it is lower and more feeble than in health, and this too in proportion to the violence and extent of the inflammation. C.

‡ Dr. Armstrong mentions a case of this kind, where the upper part of the stomach was thus diseased, but the pylorus sound. The stomach was distended with food, but the intestines were very empty, which might be owing to diminished power of contraction in the stomach.

ease. It is not easily discovered before death, for its most prominent symptoms, namely, purging, with griping pains, occur in other diseases of the bowels. It is, however, very early attended with coldness of the face and extremities, and the countenance is shrunk and anxious. It affects the intestines oftener than the stomach. This state of the stomach cannot always be attributed to the effect of the gastric juice. When the stomach is acted on by this solvent after death, we find that it is very soft, some of it in a state of semi-solution, the inner surface being dissolved, and some of it actually removed, so as to make a hole. When the preparation is put into spirits, and held between the eye and the light, the flocculent appearance of the inner surface is distinct, and numerous globules are seen within the peritoneal coat, which are probably the glands undissolved.

Peritoneal inflammation, or enteritis, is not an uncommon complaint with children. It begins with violent pain in the belly like colic, but is more constant and continued, and is accompanied with a considerable degree of fever, costiveness, and tenderness in the belly. If this disease do not prove speedily fatal, and if on the other hand, it be not perfectly removed, the child remains long ill, perhaps for some weeks, and the nature of the complaint may for a length of time be mistaken. There is constant fever, but it is subject to exacerbation in the evening. There is increasing emaciation, and at first occasional attacks of pain in the belly. The stools are usually obstructed, and when they are procured, they are slimy, bloody, ill-coloured, or scybalous, afterwards there is frequently a diarrhœa. On examining the belly externally, induration may sometimes be discovered. The appetite is lost, the thirst is considerable, the pulse becomes more frequent and feeble, the debility increases, and the extremities become cold, and in this exhausted state, the child sometimes lies for many hours before dissolution. On inspecting the abdomen, the bowels are found adhering, or forming knots, and sometimes the liver partakes of the disease.

In younger infants, the consequences of peritoneal inflammation, when it does not prove rapidly fatal, or excite convulsions, are abdominal pain or tenderness, obstinate slimy purging, vomiting, and increasing emaciation.

In young infants, we cannot carry evacuation far. But whenever there is a prolonged attack of colic, we may apprehend a severe disease, and must use the warm bath, clysters to open the bowels immediately, and then an opiate clyster to allay morbid sensibility; a small blister should be applied to the belly, and if the symptoms be very urgent, this should be preceded by the application of one or more leeches to the abdomen. In elder children, the attack is often brought on by cold, or by eating indigestible substances, as for instance, nuts. No time is to be lost in opening the bowels by clysters and laxatives, and in detracting blood from a vein. Fomentations and blisters are useful. If these means be neglected, or do not succeed, there is little hope afterwards of saving the patient, unless the bowels adhere to the abdominal muscles and an abscess takes place, which is indeed very rare. In the usual state produced by this disease, we have little in our power, except to regulate the state of the bowels, apply small blisters, and support the strength. When abscess has taken place near the pelvis, or about the rectum, the child cries much on going to stool, seems afraid to pass the fæces, and may at the time be seized with spasm or convulsions. The fæces are very offensive, and occasionally purulent matter is discharged. In such cases I have found magnesia useful as a laxative, and hyoscyamus with oil of anise of great benefit as an anodyne. If appetite be not lost, there is hope of a cure, and I have known desperate cases recover. Sometimes this produces a contraction of the rectum; or a stricture may exist there naturally, and produce great pain on going to stool. In either case a cure is effected by cutting the stricture, which is generally membranous and easily divided.

Cystitis, also, may occur in infants, and is known by the frequent and painful micturation, pain on pressing the pubis, and fever. It requires leeches to the pubis, or venesection, and the tepid bath, with laxatives.

CHAP. XII.

Of Vomiting.

Vomiting is very seldom an idiopathic disease of children. Many puke their milk after sucking freely, especially if shaken or dandled. This is not to be counted a disease, for all children vomit more or less under these circumstances. A fit of frequent and repeated vomiting, soon after sucking or drinking, if unattended with other symptoms, and the egesta are of natural appearance, may be supposed to depend on irritability of the stomach, which can be cured, by applying to the stomach a cloth dipped in spirits, and slightly dusted with pepper, or an anodyne plaster. Sometimes a spoonful or two of white wine whey settles the stomach. If, however, the egesta be sour or ill-smelled, and the milk very firmly curdled like cheese, and the child is sick, it is probable that more of that caseous substance remains, and a gentle puke of ipecacuanha will give relief. On the other hand, should the egesta be green and bilious, gentle doses of calomel will be serviceable, especially after an emetic. The sickness which sometimes precedes vomiting, especially if it be caused by bile, is accompanied with great oppression, panting, deadly paleness, and an appearance altogether as if the child were going to expire. The relief given in this state, by vomiting, is great and sudden.

Vomiting, connected with purging or febrile disease, is to be considered merely as symptomatic. It is, however, desirable to restrain it, which is done by giving small doses of saline julap, and removing the primary disease. Sometimes the œsophagus is found ruptured in children, and the contents of the stomach poured into the thorax. This probably happens from spasm taking place at the upper part of the œsophagus, whilst the stomach is rejecting its contents.

CHAP. XIII

Of Diarrhœa.

When we consider the great extent of intestinal surface, its delicacy, and the intimate connexion which exists betwixt the bowels and other organs, we shall not be surprised at the powerful and important effects produced on the system at large, by disorder of the alimentary canal.

In attending to diarrhœa, we must examine the structure of the intestine, and the purposes it is destined to perform. The bowel itself consists of muscular fibres, of glandular apparatus, of nerves and blood vessels, and of a system of lacteal vessels, which probably do more than absorb, assisting also, by glandular action, in the formation of chyle, which does not perhaps exist in a perfect state in the contents of the bowels. Now although these different parts tend to constitute one organ, yet they are not so blended in action, that all must be alike affected when the organ is deranged. All may be disordered, but one sooner, and to a greater degree, than the rest. The fibres may be excited to inordinate action, producing rapid contraction, and speedy expulsion of the contents; and this may, or may not, be accompanied with spasms and great pain. The exhalents may be greatly affected, producing copious discharge of intestinal secretion, which may be watery, mucous, slimy, or, when the vessels are abraded or open, tinged with blood. The absorbents may have their action impeded, and the chyle be not duly absorbed. The injury of one of these systems of organization not only affects the rest, but this intestinal disease influences parts immediately connected with the intestines, such as the stomach, liver, pancreas, &c. This leads us to consider the contents of the bowels. If the food be good, and the stomach digest properly, the chyme is good and natural. But if the food be bad, or in exuberant quantity, or the power of the stomach be impaired, the chyme is not properly formed, and the food is found in the intestines not thoroughly changed or digested;

perhaps little altered in its appearance. If the bowels have the same torpor with the stomach, it is retained, and forms accumulations, ending in great mischief. If the bowels be irritable, as in diarrhœa, it is generally passed speedily. The egesta from the stomach are naturally mixed with the bile, pancreatic juice, and intestinal secretion; and the colour of the compound is yellow, or yellow with a brown tinge; and during its passage downwards, a certain quantity of gas, possessing a peculiar smell, is extricated.* In young infants, however, when they are properly suckled, the stools are somewhat different from their state at a more advanced period. They are of a yellow colour, are something like custard, or are curdy, and have by no means the offensive smell they afterwards possess. If the stools have a very curdy appearance, or are too liquid, or green or dark-coloured, or ill-smelled, they are unnatural. The changes effected in the passage of the chyme are not merely chemical, but dependent on animal action; for the contents of the stomach, mixed with the fluids found in the intestines, and exposed to the same degree of heat, will not form natural-looking fæces, but the substances will simply assume the acetous or putrefactive fermentation. If the powers of the stomach and intestines be impaired, then this fermentation goes on to a great degree in the stomach and bowels, much gas is extricated,† inflation is produced, and the aliment becomes sour or putrid. If too much bile be added, the fæces are green, sometimes dark coloured. This redundancy of bile may be produced by causes acting immediately on the liver, at least not through the interposition of the intestines, and the bile comes even to be a source of irritation to the bowels, and excites diarrhœa; or the affection of the bowels

* Both the smell and the colour of the fæces are found to depend greatly on the bile. When the bile is obstructed, the stools are clay-coloured or pale, and have not the feculent smell.

† Vauquelin has ascertained, that the stools are always more or less acid. When exposed to the air, they become more acid, and soon afterwards exhale ammonia, which they do till destroyed. The greatest part of the gas extricated in the bowels consists of carbonic acid, with carbonated and sulphurated hydrogen, more or less fœtid. In indigestion, the greatest part of the gas is inflammable. Fourcroy's System, &c. Tom. X. p. 75.

may influence the liver, and excite it to a greater secretion. Some children are more bilious than others, and are subject to fits of paleness, sickness, and bilious vomiting. The pancreatic juice and intestinal secretion, when not changed in quality, but only increased in quantity, are probably not like the bile, a source of irritation, but only the produce of it. But these discharges, sometimes mixed with bile, sometimes with blood effused from a small vessel, may accumulate together with the egesta of the stomach, and form a black, pitchy-looking substance,* which sooner or later produces very bad effects. In other instances, these form a more watery substance, which is passed off with griping and purging of stools like moss water.

The colour of stools in diarrhœa varies according to the violence of the disease. In slight cases, where the action of the bowels is only increased in degree, but not altered in kind, and the stomach is not injured, the fæces are of a yellow colour, but thin, owing to the increased discharge, and have not run into fermentation. When in children the digestive faculty is somewhat impaired, and the aliment is improper, fermentation goes on more strongly, and the fæces contain more acid than usual, which, although the bile be not increased in quantity, may give them a green colour,† and the intestines are distended with air. Very green stools, however, imply a redundancy of bile, and the darker the shade of green the greater is the quantity of bile. When the irritation is great and universal, the stools are very watery, and of a dark green colour; or if the irritation be still greater, they are brown; and in either case, if the child be on the breast, portions of coagulated milk are found swimming in the fluid; if not, we have either bits of any solid food taken by the child, or small masses of dark-coloured fæces which had been accumulated in the

* The decomposition of bile by acids, which combine with its soda, furnishes a precipitate, which is thick, viscid, very bitter, and inflammable. This is probably the origin of pitchy-looking stools in some cases, though in others they may proceed from effused blood.

† All acids decompose bile, and in general produce a green precipitate. Either an unusual quantity of bile, or of acid in the bowels of children, will produce green stools; and stools which are not at first green, often become so in a short time after they are passed.

bowels. When the digestive faculty is almost gone, the stools consist of the aliment mixed with bile. Thus, if the child be drinking milk and water, or be not weaned, the stools consist of green watery fluid, with clots of milk, streaked with bile. When the irritation is greatest at some particular part of the intestines, it is not unusual for these appearances to alternate with discharge of slime and blood, as we see in intus-susception. When the secretion of bile is diminished, the stools have a cineritious appearance; but this state is not often met with in diarrhœa. Sometimes, when the liver is affected, or the bowels much diseased, the fæces may, among other changes, put on the appearance of pale yolk of egg, or are almost like pus.

Diarrhœa may be injurious in different ways. The increased peristaltic motion of so great a tract of sensible muscular substances, must, like other great muscular exertion, weaken the bowels, and thus the whole body which sympathizes with it. Great debility is often rapidly excited by affections of the intestinal fibres, though there has been little evacuation. Diarrhœa likewise injures the system by the irritation and green secretion which often accompanies it; add to this the diminution of the powers of digestion, and the obstacle afforded to the absoption of the due quantity of chyle, together with the derangement which other parts of the system may suffer, and the diseases thus excited, such as convulsions, anasarca, &c.

On inspecting the bowels after death, they are sometimes found in a state of inflammation, but oftener greatly inflated and relaxed, or with more or fewer intus-suscepted portions. In one case, no fewer than 47 intro-susceptions were found in the same body. On examining these portions, the valvulæ conniventes are found to be rather more prominent than usual, but the parts are not inflamed. Invagination of the intestine is the most frequent cause of fatal diarrhœa, not less than 50 cases have occurred to my brother in the course of his dissections. Intus-susceptio may be produced suddenly, in consequence of spasm, and may occasion great pain, with purging; or it may be caused by acrid purgatives, or those which produce much griping, as senna tea, made by boiling the leaves; or it may take place in diarrhœa, when attended with con-

siderable irritation, and it adds to the violence of the disease. It is sometimes accompanied with a diseased state of the glands. In this case there may be a swelling of the external glands, and there is often a tendency to cough. There may be a double intus-susception, and the tumour so formed may lodge in the pelvis and fill it. Inflammation is very far from being a necessary attendant on this state, it is even uncommon.

The diagnostic of intus-susceptio is very obscure, and whatever may be said to the contrary, I believe we have no certain mark by which to judge. It has been discovered, when no previous circumstances led to a supposition of its existence. But in general there is considerable pain, and marks of local irritation; such as slimy stools, with or without blood; sometimes a little frothy slime is passed, sometimes a substance like rotten eggs, and at times the contents of the intestines are vomited. It is attended with stretchings and cryings, as in colic, with occasional attacks of great paleness, like syncope; the belly is tender to the touch, and sometimes in infants the pulse is slower than ordinary. When the disease continues long, the emaciation is very great, the face resembling the bones, with merely a skin covering them, whilst the eyes are sunk. On the extremities, the skin is lax, and seems much too wide for the bone and muscles. Sometimes the intus-suscepted portion is thrown off, and passes by the rectum.

Dissection likewise shows, that a diseased state of the liver not unfrequently accompanies diarrhœa, and this may be a cause of purging oftener than is supposed. It is to be suspected, when the biliary secretion is most affected, and the region of the liver is fuller than usual, when there are cough, frequent fits of sickness, and vomiting or purging of bile. It is most effectually remedied by small doses of calomel.

In some cases, the intestines become very soft, white or almost diaphanous, and easily torn, and contain a substance somewhat like purulent matter, or thin custard.

Diarrhœa appears under various circumstances, not only with regard to the nature of the stools, but their frequency, the pain which attends them, the duration of the complaint, and the effect on other parts. In some cases the stools are extremely frequent

and uniformly so. In others, the dejections come in paroxysms, being worse either through the night or through the day. Some children are greatly griped; others are sick, oppressed, and do not cry, but moan. In severe cases, the stomach is very irritable, rejecting the food; but it is not equally so in every stage of the disease, though the stools may be the same in frequency. The appetite is more or less impaired, and in bad cases the aliment quickly passes off, and every time the child drinks it is excited to purge. The mouth, in obstinate bowel complaints, generally becomes aphthous, and the anus excoriated or tender, and it is not uncommon for the feet to swell. Sometimes the child is flushed at certain times of the day, or the face is uniformly pale, and the skin waxy in appearance. In general, if the disease be severe, a considerable degree of fever attends it, and a continued fever in the disease is always unfavourable. The stools may come away with much noise from wind, or may be passed as in health. When there is great irritation, they are either squirted out forcibly, or come in small quantity, with much pressing. Diarrhœa sometimes proves fatal in 48 hours, but it may be protracted for several weeks, as is often the case when intus-susceptio has taken place. In such protracted cases, the emaciation is prodigious, the face is lank, the eyes sunk, and the expression anxious: the strength gradually sinks, the eyes become covered with a glossy crust, the extremities cold, the respiration heaving, and the child dies completely exhausted.

Diarrhœa may be excited by a variety of causes; such as too much food, or sudden change of the kind of aliment, and hence it is often caused by weaning a delicate child. Attempts to bring up children altogether on spoon meat, some injurious quality of the nurse's milk, improper diet after weaning, the irritation of ill-digested food, redundancy of bile, previous costiveness, dentition, the application of cold to the surface, or a morbid state of the bowels connected with general debility, produced either by bad air or natural delicacy of constitution, are causes of diarrhœa. Those children suffer most who are feeble, puny, or delicate.

As diarrhœa is a frequent cause of death, we cannot be too attentive to its treatment, nor too early in the use of remedies, es-

pecially as we find, that if it be neglected in its commencement, it is apt to end in a very obstinate or incurable state. On this account I have been led to consider this disease very carefully, and shall briefly mention the treatment I have found most effectual. When the stools are natural in colour, but more liquid than usual, the frequency moderate, the continuance short, and no fever is present, it will be useful to give small doses of rhubarb, conjoined with an aromatic, taking care, however, that these do not end in producing the opposite extreme, or costiveness. In many cases, the disease will subside of itself; but if it do not abate spontaneously, or by the use of small doses of rhubarb, then it comes to be considered, how far it is proper to check the inordinate action of the fibres of the intestines. This is readily done by an anodyne clyster. But if the diarrhœa have been excited by improper food, or redundancy of food, or if it be attended with acute fever, and especially if the child be plethoric, it will be useful to give some mild laxative, such as magnesia and rhubarb, or an emulsion containing castor oil, or small doses of calomel. The tepid bath is also beneficial. If there be oppression, with fever or sickness, a gentle emetic will be a proper prelude to the laxatives. Afterwards, if the disease continue, and there be marks of much irritation of the fibres, anodyne clysters will be of signal service.

If the diarrhœa come on quickly, and the stools are from the first green or morbid, and the stomach be irritable, or its functions impaired, we should examine the gums, and cut them if the child be getting teeth. This removes or lessens a source of irritation. But whether the disease be produced by teething, by change of food consequent to weaning, or other causes, great attention is necessary. If the child be sick and oppressed, a few grains of ipecacuanha will be proper; and afterwards small doses of calomel,* or some other laxative,† should be given morning

* That excellent practitioner, Dr. Clarke of Dublin, has strongly advised half a grain of calomel to be given every night, or every second night, to infants when troubled with green stools and griping; observing, that in the course of a week or two, the stools become natural, and that it is rarely necessary to give more than from 4 to 5 grains altogether. Mem. of Irish Acad. Vol. VI.

† Cold drawn castor oil may be given in the following form; R. Ol. Ricini,

and evening. These carry off the morbid feculent matter, and excite a better action of the bowels. The calomel is usually a most effectual remedy, and it may be given even to infants a few days old. To them a quarter or half a grain, rubbed up with sugar, is a proper dose, and may be given morning and evening. To older children we give a grain. If laxatives do not increase the debility and pain, and if they render the stools more natural in appearance, they do good, and may be continued in decreasing quantity, till they are abandoned altogether. But if they merely increase the frequency of the dejections, without greatly altering their quality, the stools continuing watery, ill-coloured, and offensive, and the strength and appetite sinking, we can expect no good by continuing them, and must restrain the purging by repeated anodyne clysters, taking care that we do not delay their use too long. When the secretion is copious, and the stools frequent, and perhaps squirted out with great irritation, the strength will sink very rapidly, and a few hours may decide the fate of the child. In such circumstances, it is necessary, even although the contents of the bowels be morbid, to moderate the fibrous and secretory action, by anodyne clysters. Afterwards the morbid matter is expelled, or can be removed by gentle laxatives. Opiates given by the mouth have often a bad effect on the child, and never are equal in benefit to clysters. Cretaceous substances, joined with aromatics, are useful when there appears to be a redundancy of acid; but astringent medicines, such as kino or catechu, though they sometimes seem in slight cases to be of service, yet in more obstinate diseases fail, unless they be combined with opium, and then the benefit is perhaps more to be ascribed to that drug than to their effect; or if given in great quantity, they may perhaps excite to invagination of the intestines. In obstinate cases, small doses of calomel or of the mercurial-pill-mass, given morning and evening, with the use of anodyne clysters at the same time, to keep the purging within due bounds, are of more service than any other remedies; I can speak of this practice with confidence.

℥iii; Mannæ, ℥ss; Spt. ammon. Arom. ℥i; Aq. Cassiæ, ℥ss; aq. Font ℥iss. fiat emulsio. Of this a tea spoonful may be given as often as necessary.

Dr. Armstrong, however, when the stools are liquid or watery, sometimes colourless or brownish, or streaked with blood, and of very offensive smell, advises antimonial vomits, repeated every six or eight hours, till the stools change their appearance. But this remedy operates severely, and may induce no small degree of debility. If the plan be rejected, he advises a solution of Epsom salts, with a small quantity of laudanum. Dr. Underwood, in this disease, prescribes emetics, then warm purges, and afterwards small doses of ipecacuanha, with absorbents and aromatics.

Dr. Cheyne, in obstinate and prolonged purging, which, from frequently occurring about the time of weaning, he calls astrophia ablactatorum, strongly advises small and repeated doses of mercury, as the most effectual remedy.

When there is much fever, the use of the tepid bath morning and evening, and small doses of saline julap, or compound powder of ipecacuanha, and clothing the child in flannel, will be of great benefit. When along with fever there is much pain, and the stools are slimy, bloody, or squirted out forcibly, there is reason to fear inflammation of the mucous coat, and leeches should precede the bath.

In every case, external applications have, I think, a claim to be employed. These consist of friction with anodyne balsam, or camphorated oil of turpentine, or the application of an anodyne plaster,* to the whole abdomen, which is better. Small blisters in succession, applied to the belly, are highly useful. It is also proper to bandage the belly pretty firmly, but by no means tightly, with flannel.

During the whole course of the disease, it is proper to support the strength with light nourishment, such as beef tea, arrow-root jelly, toasted flour boiled with milk, &c; or if the child be not weaned, it is sometimes of service, in continued or repeated attacks of diarrhœa, to change the nurse. The strength should be supported by small quantities of white wine whey, given frequently.

* Such as the following: R. Saponis, ʒi; Empl. Lytharg. ʒvi; Ext. Cicutæ, ʒii; Ol. menth. pip. ʒss; Fiat empl. Or R. Empl. resinos. ʒvi, Pulv. Opii, ʒi; Camph. ʒii; Ol. Junip. ʒss; Fiat empl. Or if there be much spasm, we may use the Empl. asafœtidæ Pharm. Edin. with the addition of opium.

If the child, as is frequently the case, will not take nourishment, then clysters of beef tea, or arrow-root are to be employed, mixed with a few drops of laudanum. These are of signal service, and ought to be early and carefully employed till the child can take food into the stomach.

When the mouth becomes aphthous, it may be washed with a little syrup, sharpened with muriatic acid; or borax may be employed, along with the proper internal remedies; and when these restore the bowels to a healthy state, the mouth becomes cleaner. The appearance and disappearance of the aphthæ generally mark the fluctuation of the bowel complaint. The excoriations which appear about the anus require to be bathed with solution of sulphate of zinc, and call for great tenderness in administering clysters.

When the feet become swelled, and the urine diminished in quantity, some diuretic must be added to the other means. The best is the spiritus etheris nitrosi.

If the child become drowsy, or have a tendency to coma, much benefit will be derived from shaving the head, and applying a small blister to the scalp. Affections of other organs, supervening on bowel complaints, must be treated promptly on general principles.

It will thus appear, that the practice in diarrhœa is chiefly confined to the following points:

First, To remove every exciting cause, scarifying the gums in dentition, rectifying the action of the liver when it is deranged, and regulating the diet when the quality of the food may be supposed to have disordered the bowels.

Second, To lessen sickness and oppression of the stomach by a gentle emetic; but particularly to remove irritating fæces, and excite a better action of the intestinal surface, by small doses of calomel in prolonged cases, or by a dose of rhubarb and magnesia in recent cases of purging. The circumstances under which the administration of laxatives is beneficial or injurious, have been already pointed out.

Third, To restrain inordinate peristaltic motion, and excessive secretion, by anodyne clysters and external applications, neither of which are incompatible with the occasional use of calomel, or hydrargyrus cum creta.

Fourth, To remove or allay coincident or consecutive symptoms, by appropriate remedies.

Fifth, To support the strength from the first by suitable nourishment and cordials; and whenever the stomach cannot receive or retain food, to give nutritive clysters.

CHAP. XIV.

Of Costiveness.

Costiveness is natural to some children,—acquired by others. In the former case, it often happens, that the mother is of the same habit; and in these circumstances, we find that less detriment accrues than in the other; yet even here it is necessary to prevent the costiveness from increasing, as it may excite not only colic, but more serious diseases, such as convulsions, or diseases in the bowels. Some children, of a very irritable habit, have the rectum spasmodically affected at times, on passing the fæces, which may be followed by a convulsion. This being frequently repeated, the child becomes afraid to go to stool, and retains the fæces as long as possible, which induces a costive state. Sometimes the terror is so great, that the child can only be made to pass the fæces when half asleep.

In hereditary costiveness, it is difficult, if not impossible to induce a regular state of the bowels; and perhaps in some cases, this, if it could be done, would, seeing that it is not natural to the constitution, be injurious to the child. But we must beware, lest, by indulgence, this habit increase. Whenever the child is pale and puny, or dull, and does not thrive, there is risk of convulsions or some severe disease being induced. At a more advanced period of childhood chorea may be produced. Acquired costiveness may be overcome by medicine, and encouraging regular attempts to procure a stool. A variety of means have been employed in these

cases, such as suppositories, magnesia, and other laxatives. The best remedy for changing the state of the bowels seems to be calomel, which may be given in a suitable dose, even to an infant, for a day or two in succession, and then omitted; employing in the interim a little manna alone, or combined with castor oil, and sometimes magnesia may be substituted for a change. In more obstinate cases infusion of senna, or two or three grains of aloes may be given. A quarter of a grain of ipecacuanha, mixed with sugar, may also be tried. It is also proper to change the nurse, or alter the diet of the child, giving barley-meal porridge, veal soup, aleberry.*(p)*

CHAP. XV.

Of Colic.

Colic is a frequent complaint with children, especially when they are costive. It is often produced by too much food, exposure to cold, irregularities in the diet of the nurse, or some bad quality of her milk. It makes its attack suddenly, and is known by violent screaming, induced without any warning, and accompanied with hardness of the abdominal muscles, kicking, and drawing up of the legs, and often suppression of urine. These symptoms are soon removed by a clyster or suppository, which brings away both fæces and wind. The warm bath, fomentations, and friction on the belly with anodyne balsam or laudanum, will be serviceable; and if the pain continue, two or three drops of tincture of opium, or a rather larger dose of tincture of hyoscyamus, with oil of anise, may be given.* When the child is costive, a laxative is to be exhibited after the anodyne.

(p) Or rye mush and molasses, which is easily procured in every family, and may answer the purpose better than any of the enumerated articles.

* The anodyne mineral liquor of Hoffman, is an excellent medicine in these affections. C.

If a child be subject to repeated attacks of colic, a few drops of tincture of asafœtida are useful, and we must always take care to prevent the long continuance of pain, as it may end either in visceral inflammation or convulsions.

CHAP. XVI.

Of Marasmus.

Connected with, and generally dependent on, a morbid state of the bowels, is the marasmus, or wasting of children. This disease is preceded and accompanied by costiveness, sometimes alternated with a diarrhœa, in which the stools are fœtid, or unnatural in appearance. It begins with lassitude and debility, loss of appetite or depraved appetite, fœtid breath and fœtid stools, tumid belly, pale leucophlegmatic countenance, with swelling of the upper lip. Presently, fever supervenes, the countenance becomes at times flushed, and the skin hot and dry, with frequent pulse, thirst, restlessness, picking of the nose, and disturbed sleep, in which the patient grinds his teeth and starts. The debility gradually increases, and if relief be not procured, death, preceded by great emaciation, takes place. This disease is most frequent with those who are fed on improper food, or eat many raw roots, or much unripe fruit; or those who have the digestive faculty impaired by confinement, bad air, or neglect of the bowels. It very often is considered as produced by worms; but these, although they may often exist in the bowels, are by no means essential to the disease.

This disease may, in the commencement, and before the appearance of fever, be arrested by a course of active purges, given at proper intervals; at the same time we may give light nourishing diet, and inculcate the necessity of exercise in the open air. In the febrile stage, the cure is more difficult, but is to be accomplished on a similar principle, by attending to the state of the

bowels. For this purpose, purgatives must be frequently repeated, especially calomel; and here it is necessary to remark, that the stools are not always hard; they are often fluid, but generally fœtid, and dark in the colour, or appear to contain indigested food. A course of purgatives, however, by degrees procures discharge of fæces of natural appearance. Whilst this course is conducting, the strength is to be supported by proper diet, and the prudent use of wine. The power of the stomach may be increased by chalybeates or other tonics, provided these are not nauseated by the patient. After recovery has taken place, we must, by very gentle laxatives, preserve an open state of the bowels, which will prevent a relapse. Sea-bathing is likewise of advantage.*

The state of the bowels which gives rise to marasmus, sometimes produces speedily more acute symptoms. These constitute a very frequent species of fever, which we have already noticed.

CHAP. XVII.

Of Tabes Mesenterica.

Tabes mesenterica, or hectic from disease of the mesenteric glands, is a very frequent disease. It is not often met with before the time of weaning, nor after puberty, seldom after the age of eight or ten years. The disease consists in enlargement of the mesenteric glands,† which are sometimes universally affected, but

* Those who wish to know what other remedies are employed, though without much benefit, may consult Baumes de l'amaigrissement des enfans.

† This state is sometimes accompanied with swelling of the thymus gland, and the lymphatic glands of the neck. Swelling of the thymus gland, by pressing on the trachea and œsophagus, produces difficulty of breathing and of swallowing, and sometimes suffocation. By pressing on the subclavian vein, it obstructs the passage of the chyle, and may thus excite disease in the mesenteric glands. Blisters applied to the top of the sternum sometimes do good.

are especially enlarged into a hard mass about the root of the mesentery. These tend slowly to the formation of a cheesy substance, but death may take place before that process be accomplished. The commencement of the disease is slow and obscure; the patient complains of little or no pain, but is subject to an irregular state of the bowels; is either costive, or passes dark loose fæces; is unhealthy in his appearance, and liable to occasional attacks of fever. The urine is white or turbid. The appetite is not much diminished, and digestion goes on; but the belly is hard and somewhat tumid. The child is more fretful than usual, and sometimes, especially if very young, is troubled with vomiting. This is the incipient stage, and resembles very much that of marasmus proceeding from affection of the bowels independent of diseased glands. As the disease advances, the body wastes away, the face is pale, and the features become sharp, the abdomen gradually enlarges more, and the patient complains of lancinating pains, of short duration however, within the belly, or near the back. The stools are now sometimes bound, but oftener loose, frothy, and mixed with bile; occasionally the patient has diarrhœa, with vomiting. The fever, which at first is obscure and intermitting, becomes more acute and distinct, with exacerbation in the evening, attended with restlessness and acceleration of the pulse, which rises to 120 strokes in a minute, or even more. The patient is listless, and his mind becomes gradually inactive, though he does not lose hopes of recovery. The tongue is generally clean, but sometimes covered with a white or brown crust, especially in the middle; and in an advanced stage, the whole mouth and throat become aphthous. The thirst is trifling, but the appetite is usually impaired, and a short cough supervenes. As the disease proceeds, the emaciation of the body increases, the eyes are sunk and glossy, the nose sharp, and apparently elongated, the face sallow, but the lips are sometimes florid, and the cheeks flushed at night. The abdomen is hard, and sounds like a drum when struck upon, or if not very tense, knots may sometimes be felt within it.* The

* Sometimes a hard tumour may be felt within the belly, pretty early in the disease. It is often felt in the right side, near the origin of the colon.

urine is lessened in quantity, and it often deposits a white or lateritious sediment, the feet swell, and during sleep, the forehead, scalp, and sometimes the breast, are covered with a profuse sweat, whilst the rest of the skin is hard and dry. The progress of this disease is not always alike rapid. In some cases, the patient lives for a year or two in bad health; but in general, after hectic has appeared, a few months, sometimes weeks cut him off.

In the commencement of this disease, the steady and repeated use of mild purges with calomel, conjoined with some light bitter infusion, decoction of bark, tonic medicines, and gentle friction over the belly continued for a considerable length of time, morning and evening, would appear to be of more service than any other plan of treatment. It has been proposed to give calomel in small doses, as a mercurial; but it does not appear to have great efficacy, and is chiefly of use, in so far as it acts as a gentle purgative. Copious evacuations in this disease are not required. It is sufficient that the bowels be brought into, and kept in a regular state, which, in the incipient stage, at least, sometimes requires pretty strong doses. But in the confirmed and advanced stage, stools are easily obtained; and from the loose state of the bowels which often prevails, it comes to be a question how far laxatives are proper. Upon this important subject, I observe, that these medicines ought not to be severe, but gentle, and given frequently, provided they have the effect of diminishing the tumour of the belly, making the stools more natural, and do not impair the strength. The lax stools which take place in this disease spontaneously, never abate the tumefaction; but a gentle course of laxatives often does, and this is a most favourable effect. Farther, if the paroxysms of fever be severe, and early in their appearance, we find it necessary to use purgatives more freely than in opposite circumstances; evacuation by stool being in such cases advantageous. In the confirmed and advanced stage, it is sufficient that such a dose of calomel be given every night, or every second or third night, as shall keep the bowels open if disposed to be costive, or, if loose, make the stools more natural in their appearance than they would be without the administration of medicine. We must, however, take care that the mercury does not excite much

effect on the constitution, lest debility be increased; it is therefore prudent, sometimes, to combine the calomel with rhubarb, or to employ a little castor oil emulsion. Along with this plan, we may, in every stage of the disease, derive advantage from the use of tonic medicines, such as bitters and chalybeates, especially in the form of mineral waters. But the last are to be used cautiously, if there be marks of inflammation existing in the glands; and in such cases, some light bitter infusion is preferable to chalybeates. In such circumstances, the laxatives are to be used more freely, the tepid bath is to be employed, and the belly rubbed freely with anodyne balsam. Gentle exercise in the open air is of great service, and it is useful in the early part of the disease to reside near the sea; but if the glands seem to be in a state of inflammation, discovered by shooting pain with fever, the patient must not bathe; and indeed, at all times, the utility and safety of the cold bath seem to be doubtful, except when the disease is so far removed, that we have chiefly to contend with debility. The warm bath is more generally useful. The diet should be light and nutritious, but all stimulating and indigestible substances must be avoided. If an inflammatory state exist, milk in different forms, soft boiled eggs, and vegetables, are proper. If no inflammation be present, some animal food will be of service; nay, as in other scrofulous affections, a very considerable proportion of animal diet is sometimes beneficial, in preventing the tumour from inflaming and forming a cheesy substance, or in giving a favourable turn to the action, when the acute state of inflammation has abated, in those cases where it is met with, for it is by no means a universal occurrence.

In the latter end of the disease, little can be done except palliating symptoms, and supporting the strength by soups and a little wine. Diarrhœa should be restrained by anodyne clysters.

Cicuta, burnt sponge, and some other medicines, have been advised in this disease, but I cannot say that they have been employed with advantage. Electricity is sometimes of service.

CHAP. XVIII.

Of Worms.

Worms exist in the bowels, perhaps, of every child,* but especially in those whose bowels are debilitated by bad management, or by acute disease; and hence, in the end of disease, or after recovering from such illness, worms are often expelled, both by children and adults. Worms are of different kinds, but infants are chiefly infested with lumbrici and ascarides, the teniæ being rarely met with until children are four or five years old. We also sometimes meet with some uncommon species of worm, which are ejected by vomiting, and some lususes have been passed by stool; thus, for instance, I have seen a worm about three inches long, having two large flat heads, with two bodies, separated for a little, and then united into a common trunk, ending in a tapering tail. Insects of different kinds may also be introduced accidentally into the stomach and bowels, and live there for some time.

Ascarides generally occupy the rectum, producing much itching in that part, so that sleep is often prevented. The irritation causes indigestion and pain in the belly, with picking of the nose and white face, a variable appetite, and sometimes a desire for indigestible substances. The worms are discovered in the stools like small white threads, and occasionally they creep out from the rectum. The stools are often slimy or mucous. This kind of worms is removed by injections of aloes mixed with water, or decoction of semen santonicum, or any strong bitter infusion containing salt(*q*) in solution, or the common turpentine injection; lime water and olive oil also sometimes destroy them, but cannot be

* Worms rarely appear in the bowels, till after the child is weaned.

(*q*) Dr. Kuhn of Philadelphia, whose experience has been very extensive, and whose correct and discriminating judgment is unquestioned, says he has found no article so useful in the destruction of ascarides, as injections of a solution of common salt. Vide Barton's Edit. of Cullen's Mat. Met. Vol. II.

depended on. Calomel purges are proper likewise; and any disordered state of the alimentary canal which exists, is to be treated on general principles.

The ascaris lumbricoides is often from six to ten inches long. In its general appearance it resembles the earth worm, but differs from it, in having, besides other distinctions, a longitudinal line on each side, whereas the earth worm has three lines on the upper surface. It dies soon after its expulsion, but when alive it moves like an eel, and does not shorten the body like a worm. Dr. Hooper, in the fifth vol. of the Mem. of Med. Soc. has a valuable paper on intestinal worms. Lumbrici may exist in every part of the alimentary canal, and frequently are ejected by vomiting, as well as by stool. The symptoms are those of intestinal irritation,* pains in the belly, frequent attacks of diarrhœa, variable, and often voracious appetite, the child sometimes becoming hungry almost immediately after having ate heartily, fœtid breath, pale complexion, tumour of the lips, with livid circle round the eyes, swelling of the belly at night, and disturbed sleep, the child occasionally awaking in great terror, and being liable to starting and grinding of the teeth. When awake, he picks his nose, is plagued with temporary headach, sometimes has a dry cough, with slow fever, or convulsive affections, or eclampsia. I have already pointed out several diseases proceeding from disorder of the bowels, and these may arise from worms, in as much as they are capable of irritating the bowels, or injuring their action, or increasing such a debilitated state, as may have predisposed to their accumulation. A variety of anthelmintics have been advised, for an account of which, I refer to the writers on the Materia Medica. Sulphur, tansy, aloes, spigelia marylandica, dolichos pruriens, the gœffrea, worm seed, tin powder, filings of steel, &c. have all at times a good effect; but in general, calomel purges given repeatedly and liberally, provided the constitution of the patient will bear them, will

* Hence it is not easy to say that worms are the cause of a child's complaint, for other morbid affections of the bowels produce the same symptoms. A course of purging removes these symptoms, without bringing away any worms; although the slimy appearance of the stools is attributed to the worms being dissolved.

be found very effectual; or these may be alternated with saline purgatives, oil of turpentine, or suitable doses of aloes or jalap.

In obstinate cases, much benefit will be derived by giving a regular course of purgatives, so as to keep up a constant but gentle effect on the bowels. After the worms are expelled, a bitter infusion, or chalybeate water, will be useful to strengthen the bowels, or these may even be employed whilst we are using the purgatives.

The trichuris, or long thread worm, is about two inches long, and two thirds of this form a tail like a hair. The body is about the 16th of an inch thick, and the worm is white like the ascaris. It is found in the rectum, and also higher up, even in the ilium.

The tænia consists of many flat jointed portions, and is divided into the T. Solium, where the orifices are placed on the margins of the joints, and the T. Lata, where they are found on the surface. The usual symptoms are produced. The best remedies are smart purges of calomel, alternating with doses of oil of turpentine proportioned to the age; a dessert spoonful may be given to a child of four years of age.(r) The tænia is more difficult to be removed than other worms.

CHAP. XIX.

Of Jaundice.

The jaundice of infants is a disease attended with great danger, especially if it appear very soon after birth, and the stools evince a deficiency of bile; for we have then reason to apprehend some

(r) Oil of turpentine has been given to infants in smaller doses, measured by drops, for the other species of worms with success. It may certainly be considered as a powerful anthelmintic. The reader is referred to other cases illustrating its effects in the expulsion of tænia, to Eclectic Repertory, Vol. I. and to Medico-Chirurgical Transactions, Vol. II.

incurable state of the biliary apparatus. I conceive that there are two species of this disease, which are very opposite in their nature. In the first there is an obstacle to the passage of the bile into the intestine, the child is costive, and the meconium is paler than usual, and after it is removed, the stools become light-coloured; the skin, very early after birth, becomes of a deep yellow colour, which extends to the eyes. The child sucks very little, has occasionally a difficulty in swallowing, is languid, becomes emaciated, moans much, is troubled with flatulence, sometimes with cough and phlegm in the trachea, or vomiting, convulsions, colic, and fever, occasionally supervene. In some cases, the liver is felt enlarged, and the hypochondrium is tumid. The water is very high-coloured. This disease often proves fatal in a week, but it has been known to continue in variable degrees of violence for a considerable time, and at last to disappear, though such children continue long delicate. With regard to the cause of this disease, we find, that sometimes it consists in obstruction of the hepatic duct, or ductus communis, either by thickening of the coats, or pressure, in consequence of enlargement of some part in the vicinity of the duct; or it may consist in imperforation of the duct. Sometimes it proceeds from temporary obstruction in the duct, owing to viscidityof the bile. Now some of these cases are irremoveable, others are not; but as we cannot, *a priori*, say what the cause may be, in any particular instance, we must use the means of cure in every case. The most likely remedies for removing this disease, are gentle emetics, given very early, and followed by the exhibition of half a grain of calomel, morning and evening, till the bowels are acted on; or we may give this medicine even three times a day, in some cases; but we must be cautious not to induce much purging, or push the mercury far, lest we bring on fits.

The second species differs from the first, in the stools being dark-coloured or green, showing that there is no obstruction, or at least no permanent obstruction, to the passage of the bile.* Like the first species, it appears soon after birth, and is accompanied with great oppression, moaning, colic, and convulsive affections. It is attended with much danger, and frequently carries off the infant

* It is in this species alone that the opinion can be admitted, that infantile jaundice depends on absorption of bile from the intestines.

in a few days. The early use of calomel would appear to be the most proper practice, and the strength must be supported in all those cases by the breast milk, given with the spoon, if the child will not suck, and small doses of white wine whey.

Jaundice, appearing at a considerable period after birth, does not require a separate consideration here, nor is it a very common occurrence.

CHAP. XX.

Of Diseased Liver.

Enlargement and inflammation of the liver are not uncommon in infancy and childhood, but the first is most common in infancy. It is productive of vomiting, oppressed breathing, cough, fever, and sometimes purging. The liver can be felt enlarged, and extending lower down, or more to the left side than it ought to do, which will distinguish this complaint from inflammation of the lungs, which is also not so frequently attended with vomiting.* I cannot say much that will be satisfactory respecting the treatment. Mercurial friction and blisters are chiefly to be relied on.†

Hepatitis in infancy is marked with the symptoms attending enlargement of the liver; but there is more fever, and sometimes pain, when the liver is pressed on. The disease often begins with symptoms of disordered stomach, and colic pain. Fever comes on, accompanied with cough, which is sometimes soon succeeded

* On examining the liver, it is sometimes found soft, and not much altered in structure, sometimes hard, and almost cartilaginous, with the pori biliari hardened and obstructed, so that secretion of bile does not take place, and the gall bladder becomes shrivelled. This state cannot be attended with jaundice.

† Active mercurial purges I have found useful in this stage of the disease; after which, small doses of calomel should be given morning and evening for some weeks. If there be pain, leeches should be applied to the side. C.

by jaundice. The stools are often like yolk of egg, or, if there be obstruction to the passage of the bile, they are clay-coloured, and the urine red, with much sediment. On inspecting the body of infants who have died of this disease, the surface of the liver, sometimes only its convex surface, is often found of a deep red colour, with an exudation of white lymph, exactly resembling the cuticle of a blistered part. Betwixt the liver and diaphragm, we find white flaky fluid, something like pus, and similar matter is often found among the bowels, mixed with pieces of fatty-looking lymph. The liver is not necessarily enlarged, nor its substance affected. The stomach and bowels are not inflamed, but sometimes have a white blanched appearance, and contain a fluid like thin custard. The bile is not changed in its colour. In some instances of chronic inflammation, the liver is somewhat enlarged, of a dark colour, and the veins turgid. Leeches, blisters, and a gentle laxative course of mercury, are the means of cure. In older children we find hepatitis to commence either acutely or slowly. When it begins acutely, the child, probably after a surfeit, or some irregularity of diet, or exposure to cold, complains of severe pain in the upper part of the belly, like colic, accompanied with sickness and vomiting; and either attended, or soon succeeded by fever, short cough, and pain, sometimes dull, sometimes sharp in the right side, and occasionally affecting the shoulder. Jaundice also, not unfrequently, is produced and lasts for a few days. There is thirst, no appetite, but the child feels continually as if he had ate too much, is subject to fits of squeamishness, and complains when the liver is pressed. If the remedies do not check the disease, the liver enlarges, and its region is full; abscess is formed, attended with irregular chilliness, hectic symptoms, and much pink-coloured sediment in the urine. In a few weeks, sometimes in a shorter period, the patient is sensible of a smell like rotten eggs, which he thinks comes from the stomach; then a little fœtid matter is coughed up, which is followed by copious expectoration; or he ejects pus as if he vomited it from the stomach. The cough and spitting, with hectic symptoms continue long, but at last decline and go off.

In the early stage, blood-letting, if instantly resorted to, may be of service, but not if delayed. Blisters are always proper. The

bowels should be freely opened, and afterwards a gentle course of mercury employed. In the suppurating stage, mercury should not be used, but the strength is to be supported by proper diet. In the expectorating stage, the same plan is necessary, with the use of tonics, such as chalybeates joined with myrrh, and occasionally opiates. A speedy removal to the country, if the weather be mild, is advantageous. Sometimes the abscess bursts into the stomach or intestines, adhesion previously taking place; or, I have known it burst into the general cavity of the abdomen, and the matter accumulate there, forming a tumour like ascites, bursting at last by the navel, which inflamed; or it has been drawn off with a trocar, and recovery has been accomplished.

The more slow or chronic species may be excited by a torpid state of the whole chylopoetic viscera, consequent to neglected bowels, or other causes; or it may occur after some other disease, such as peripneumony, scarlatina, &c. The child has fits of sickness, vomits bile in the morning, and loses his appetite; or if he has a strong desire for particular kinds of food, or feels very hungry at times, he either cannot eat when he receives food, or is instantly filled. The strength diminishes, the bowels are torpid, and the stools white, in some cases bilious, or dark and offensive; in others there is a constant dry cough, and inclination to hawk or spit, the pulse is frequent, the upper part of the belly becomes swelled at night, but there is little or no pain in the region of the liver; if any be felt, it is rather referred to the bowels. By and by considerable pain, like colic, is felt near the stomach, especially at night, and that part of the belly is then swelled, but towards morning it subsides. On examination, however, the hypochondriac region is felt full, and the liver can be perceived extending towards the left side, and pain, and sometimes sickness, are produced by pressure. The urine is high-coloured, the feet swell at night, and the face has a slight hectic flush. If the disease be not checked, it goes on to suppuration, producing distinct hectic fever, terminating in death, if the matter be not discharged; or, it may be, irritation proves fatal, even without suppuration. Repeated blisters, laxatives, and mercurial inunction are the remedies, with diuretics, if there be dropsical symptoms.

The spleen is frequently enlarged, and sometimes contains tubercles. I do not know any other diagnostic symptom, than the belly being tumid and hard in the region of the spleen; frequently a cough attends this state. Mercurial laxatives, and blisters, are the best remedies, but most cases I have met with have proved fatal.*

CHAP. XXI.

Of Fever.

Fever is a frequent disease in infancy and childhood, but it is generally symptomatic, or produced by some local irritation, and has been considered in some of the former chapters. Typhus fever is extremely rare in infancy, but it sometimes is communicated to children a few years old. It is known by our evidently tracing the channel of infection.† The child at first is languid, pale, chilly, and debilitated, the appetite is lost, the head becomes painful, the skin hot, the tongue foul, the eye dull, or suffused, and the pulse very quick; and if a favourable crisis be not procured, great oppression, succeeded by stupor, precedes death. In the course of the disease, the bowels are generally bound, the stools fœtid, and the urine thick. It requires the early use of emetics in the cold stage, succeeded by saline julap. If the hot stage, however, be fully established, and the heat considerable, the affusion will be of advantage, succeeded by calomel purges and saline julap, with light diet, and the use of ripe fruit. A free circulation of

* I pursue here the same mode of treatment as in enlargement of the liver. Exercise, and especially swinging, is useful. Compression of the abdomen by a flannel bandage is also beneficial. C.

† Many of the fevers of children, not at all originating in contagion, soon run into the typhus form. This, therefore, can hardly be considered as a diagnostic. C.

air is of essential benefit. The skin, in the course of the disease, especially among the poor, should be sponged daily with tepid water, and the bed-clothes, if possible, changed frequently. If the head be very painful in the first stage, the application of leeches to the forehead and the use of laxatives will be proper; or if the pulse be full, a little blood may be taken from the arm. If pain continue, or stupor, or constant drowsiness supervene, blisters will be proper. The strength, in the latter end of the disease, is to be supported by the prudent use of wine. Cough in general requires blisters to the breast, with squill vinegar.

A

Series of Engravings,

WITH

ILLUSTRATIONS,

SELECTED FROM SMELLIE'S PLATES.

Plate 1.

R. Campbell Sc.

PLATE I.

Represents, in a front view, the Bones of a well formed Pelvis.

The five vertebræ of the loins.
The os sacrum.
A The os coccygis.
B The os ilium.
C.C The ossa ischia.
D The ossa pubis.
E The foramina magna.
F The acetabula.
G.G.G The brim of the pelvis, or that circumference of its cavity, which is described at the sides by the inferior parts of the ossa ilium, and at the back and fore parts by the superior parts of the ossa pubis and sacrum.

In this Table, besides the general structure and figure of the several bones, the dimensions of the brim of the pelvis, and the distance between the under part of the ossa ischium, are particularly to be attended to; from which it will appear that the cavity of the brim is commonly wider from side to side than from the back to the fore-part, but that the sides below are in the contrary proportion. The reader, however, ought not from this to conclude, that every pelvis is similar in figure and dimensions, since even well formed ones differ in some degree from each other. In general, the brim of the pelvis measures about five inches and a quarter from side to side, and four inches and a quarter from the back to the fore-part; there being likewise the same distance between the inferior parts of the ossa ischium. All these measures, however, must be understood as taken from the skeleton; for, in the subject, the cavity of the pelvis is considerably diminished by its integuments and contents. Correspondent also to this diminution, the usual dimensions of the head of the full-grown fœtus are but three inches and a half from ear to ear, and four inches and a quarter from the fore to the hind head.

PLATE II.

Represents the Uterus in the eighth or ninth month of Pregnancy.

The uterus, as stretched to near its full extent, with the waters, and containing the fœtus entangled in the funis; the head presenting at the upper part of the pelvis.

A.A The superior part of the ossa ilium.

B.B The acetabula.

C The remaining posterior parts of the ossa ischium.

D The coccyx.

E The inferior part of the rectum.

F.F The vagina stretched on each side.

G The os uteri, the neck of the womb being stretched to its full extent, or entirely obliterated.

H Part of the vesica urinaria.

I The placenta at the superior and posterior part of the uterus.

K.K The membranes.

This plate shows in what manner the uterus stretches, and how its neck grows shorter, in the different periods of pregnancy.

Notwithstanding it has been handed down as an invariable truth, from the earliest accounts of the art to the present times, that when the head of the fœtus presented, the face was turned to the posterior part of the pelvis; yet, from Mr. Ould's observation, as well as from some late dissections of the gravid uterus, and from what is observed in practice, it is most probable that the head presents, for the most part, as is here delineated, with one ear to the pubes, and the other to the os sacrum; though sometimes this may vary, according to the form of the head, as well as that of the pelvis.

Consult Dr. Hunter's elegant plates of the gravid uterus.

Plate 2.

R. Campbell Sc

Plate 3.

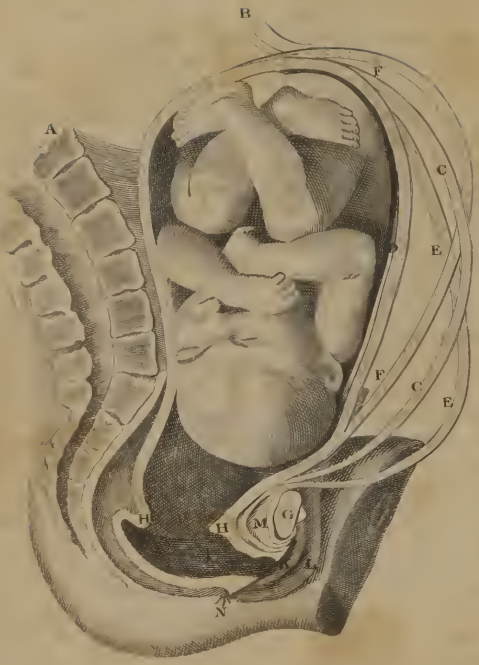

PLATE III.

Shows (in a lateral view and longitudinal division of the parts) the Gravid Uterus when labour is somewhat advanced.

A The lowest vertebra of the back.
B The scrobiculus cordis; the distance from which to the last mentioned vertebra is here shown by dotted lines; as also part of the region below the diaphragm.
C.C The usual thickness and figure of the uterus when extended with the waters at the latter end of pregnancy.
D The same, contracted and grown thicker after the waters are evacuated.
E.E The figure of the uterus when pendulous. In this case, if the membranes break when the patient is in an erect position, the head of the fœtus runs a risk of sliding over and above the ossa pubis, whence the shoulders will be pushed into the pelvis.
F.F The figure of the uterus, when stretched higher than usual, which generally occasions vomitings, and difficulty of breathing. Consult on this subject Mr. Levret, sur le Mechanisme de Differentes Grossesses.
G The os pubis of the left side.
H.H The os internum.
I The vagina.
K The left nympha.
L The labium pudendi of the same side.
M The remaining portion of the bladder.
N The anus.

In this period of labour, the os uteri being more and more stretched by the membranes pushing down, and beginning to extend to the vagina, a great quantity of waters is forced down at the same time, and (if the membranes break) is discharged; whence the uterus contracts itself nearer to the body of the fœtus, which is here represented in a natural position, with the vertex resting at the superior part of the ossa pubis, and the forehead toward the right os ilium. As soon as the uterus is in contact with the body of the fœtus, the head of the same is forced backward toward the os sacrum from the line of the abdomen B G into that of the pelvis, viz. from the uppermost F. to near the end of the coccyx, and is gradually pushed lower, as in the following plate.

PLATE IV.

Shows the natural position of the head of the fœtus when sunk down into the middle of the pelvis after the os internum is fully opened; a large quantity of the waters being protruded with the membranes through the os externum, but prevented from being all discharged, by the head's filling up the vagina.

The uterus a little contracted, and thicker, from some of the waters being sunk down before the child, or discharged.

A The superior parts of the ossa ilium.

B The inferior part of the rectum.

C.C The vagina largely stretched with the head of the fœtus.

D.D The os internum fully opened.

E A portion of the placenta.

F The membranes.

G.G The ligamenta lata.

H.H The ligamenta rotunda. Both these last stretched upwards with the uterus.

The vertex of the fœtus being now down at the inferior part of the right os ischium, and the wide part of the head at the narrow and inferior part of the pelvis, the forehead, by the force of the pains, is gradually moved backwards; and, as it advances lower, the vertex and occiput turn out below the pubes, as in the next plate. Hence may be learnt of what consequence it is to know, that it is wider from side to side at the brim of the pelvis, than from the back to the fore part; and that it is wider from the fore to the hind head of the child, than from ear to ear.


A
G
D
B

R. Campbell Sc.

PLATE V.

Shows the forehead of the fœtus turned (in its progression downwards, from its position in the former plate) backwards to the os sacrum, and the occiput below the pubes; by which means the narrow part of the head is to the narrow part of the pelvis, that is, between the inferior parts of the ossa ischium. Hence it may be observed, that, though the distance between the inferior parts of the last mentioned bones is much the same as between the coccyx and pubes; yet, as the cavity of the pelvis is much shallower at the anterior than lateral part, the occiput of the fœtus, when come down to the inferior part of either os ischium, turns out below the pubes. This answers the same end as if the pelvis itself had been wider from the posterior part than from side to side; the head likewise enlarging the cavity by forcing back the coccyx, and pushing out the external parts in form of a large tumour.

The uterus contracted closely to the fœtus after the waters are evacuated.

The vertebræ of the loins, os sacrum, and coccyx.

A The anus.
B The left hip.
C The perinæum.
D The os externum beginning to dilate.
E The os pubis of the left side.
F The remaining portion of the bladder.
G The posterior part of the os uteri.

PLATE VI.

Shows in what manner the head of the fœtus is helped along with the forceps, as artificial hands, when it is necessary to assist with the same for the safety of either mother or child.

The vertebræ of the loins, os sacrum, and coccyx.
A The os pubis of the left side.
B The remaining part of the bladder.
C The intestinum rectum.
D The mons veneris.
E The clitoris, with the left nympha.
F The corpus cavernosum clitoridis.
X The meatus urinarius.
H The left labium pudendi.
I The anus.
K The perinæum.
L.M The left hip and thigh.

The patient, in this case, may be placed as in this plate, on her side, with her breech a little over the side or foot of the bed, her knees being likewise pulled up to her abdomen, and a pillow placed between them, care being taken, at the same time, that the parts are, by a proper covering, defended from the external air. If the hairy scalp of the fœtus is so swelled, that the situation of the head cannot be distinguished by the sutures, as in plate III.; or if, by introducing a finger between the head of the child and the pubes, or groins, the ear or back part of the neck cannot be felt, the os externum must be gradually dilated in the time of the pains, with the operator's fingers, (previously lubricated with hog's lard,) till the whole hand can be introduced into the vagina, and slipped up, in a flattish form, between the posterior part of the pelvis and child's head. This last is then to be raised up as high as possible, to allow room for the fingers to reach the ear and posterior part of the neck. When the position of the head is known, the operator must withdraw his hand, and wait to see if the stretching of the parts will renew or increase the labour-pains, and allow more space for the advancement of the head in the pelvis. If this, however, proves of no effect, the fingers are again to be introduced as before, and one of the blades of the forceps (lubricated with lard) is then to be applied along the inside of the hand or fingers, and left ear of the child, as represented in the plate. But, if the pelvis is distorted, and projects forward at the superior part of the os sacrum, and the forehead, therefore, cannot be moved a little backwards, in order to turn the ear from that part of the pelvis which prevents the end of the forceps to pass the same; in that case, the blade must be introduced along the posterior part of the ear at the side of the distorted bone. The hand that was introduced is then to be withdrawn, and the handle of the introduced blade held with

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it as far back as the perinæum will allow, whilst the fingers of the other hand are introduced to the os uteri, at the pubes or right groin, and the other blade placed exactly opposite to the former. This done, the handles being taken hold of and joined together, the head is to be pulled lower and lower every pain, till the vertex, as in this plate, is brought down to the inferior part of the left ischium, or below the same. The wide part of the head being now advanced to the narrow part of the pelvis betwixt the tuberosities of the ossa ischium, it is to be turned from the left ischium, out below the pubes, and the forehead backwards to the concave part of the os sacrum and coccyx, and afterwards the head brought along and delivered, as in plate VII. and VIII. But, if it is found that the delivery will require a considerable degree of force, from the head being large, or the pelvis narrow, the handles of the forceps are to be tied together with a fillet, as represented in this table, to prevent their position being changed, whilst the woman is turned on her back, which is then more convenient for delivering the head, than when laying on the side.

This plate shows that the handles of the forceps ought to be held as far back as the os externum will allow, that the blades may be in an imaginary line between that and the middle space between the umbilicus and the scrobiculus cordis. When the forceps are applied along the ears and sides of the head, they are nearer to one another, have a better hold, and mark less, than when over the occipital and frontal bones.

PLATE VII.

In this, the os externum is open, the occiput comes low down from below the pubes, and the forehead past the coccyx, by which both the anus and perinæum are stretched out in form of a large tumour.

When the head is so far advanced, the operator ought to extract with great caution, lest the parts should be torn. If the labour-pains are sufficient, the forehead may be kept down, and helped along, in a slow manner, by pressing against it with the fingers on the external parts below the coccyx; at the same time, the forceps being taken off, the head may be allowed to stretch the os externum more and more, in a gradual manner, from the force of the labour-pains, as well as assistance of the fingers. But, if the former are weak and insufficient, the assistance of the forceps must be continued. (Vide the description of the parts in plate VI.) S.T. in this, represent the left side of the os uteri. The dotted lines demonstrate the situation of the bones of the pelvis on the right side, and may serve as an example for all the lateral views of the same.

A.B.C.H. The outlines of the os ilium.

D.E.F. The same of the pubis and ischium.

M.N. The foramen magnum.


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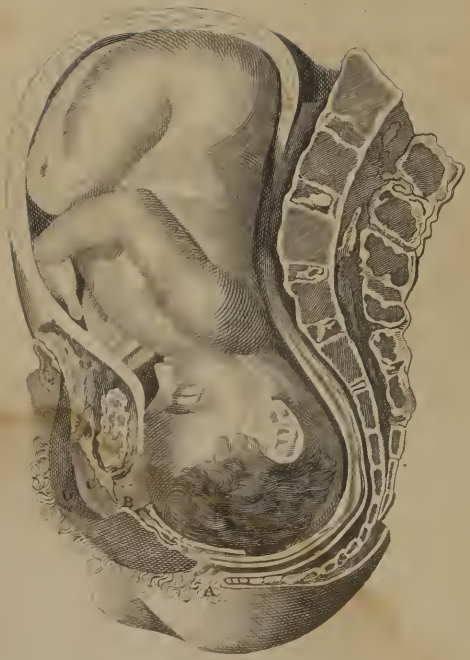
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PLATE VIII.

In the same section of the parts, but with a view of the right side, shows the head of the fœtus in the contrary position to the three last figures, the vertex being here in the concavity of the sacrum and the forehead turned to the pubes.

A The anus.
B The os externum not yet begun to stretch.
C The nympha.
D The labium pudendi of the right side.

When the head is small, and the pelvis large, the parietal bones and the forehead will, in this case, as they are forced downwards by the labour-pains, gradually dilate the os externum, and stretch the parts between that and the coccyx, in form of a large tumour, till the face comes down below the pubes, when the head will be safely delivered. But, if the same be large, and the pelvis narrow, the difficulty will be greater, and the child in danger ; as in the following plate.

PLATE IX.

Shows, in a lateral view, the face of the child presenting, and forced down into the lower part of the pelvis, the chin being below the pubes, and the vertex in the concavity of the os sacrum; the waters likewise being all discharged, the uterus appears closely joined to the body of the child, round the neck of which is one circumvolution of the funis.

A The inferior part of the rectum.
B The perinæum.
C The left labium pudendi.

When the pelvis is large, the head, if small, will come along in this position, and the child be saved; for, as the head advances lower, the face and forehead will stretch the parts between the frænum labiorum and coccyx, in form of a large tumour. As the os externum likewise is dilated, the face will be forced through it; the under part of the chin will rise upwards over the anterior part of the pubes; and the forehead, vertex, and occiput, turn from the parts below. If the head, however, is large, it will be detained, either when higher, or in this position. In this case, if the position cannot be altered to the natural, the child ought to be turned and delivered footling.


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C
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PLATE X.

Shows, in a front view of the parts, the forehead of the fœtus presenting at the brim of the pelvis, the face being turned to one side, the fontanelle to the other, and the feet and breech stretched toward the fundus uteri.

A The perinæum.
B The os externum ; the thickness of the posterior part before it is stretched with the head of the child.
C.C.C The vagina.
D The os uteri not yet fully dilated.

If the face is not forced down, the head will sometimes come along in this manner ; in which case the vertex will be flattened, and the forehead raised in a conical form; and when the head comes down to the lower part of the pelvis, the face or occiput will be turned from the side, and come out below the pubes. But, if the head is large, and cannot be delivered by the pains, or if the wrong position cannot be altered, the child must be delivered with the forceps. If they should fail, recourse must be had to embryulcia.

PLATE XI.

Shows, in a lateral view of the right side, the face of the fœtus presenting, as in Plate ix. but in a contrary position; that is, with the chin to the os sacrum, and the bregma to the pubes, the waters evacuated, and the uterus contracted.

In such cases, as well as in those described in the last Plate, if the child is small, the head will be pushed lower with the labour-pains, and gradually stretch the lower part of the vagina and the external parts; by which means the os externum will be more and more dilated, till the vertex comes out below the pubes, and rises up on the outside; in which case the delivery is then the same as in natural labours. But, if the head is large, it will pass along with great difficulty, whence the brain, and vessels of the neck, will be so much compressed and obstructed, as to destroy the child. To prevent which, if called in time, before the head is far advanced in the pelvis, the child ought to be turned, and brought footling. If the head, however, is low down, and cannot be turned, the delivery is then to be performed with the forceps, either by bringing along the head as it presents, or as in the following Plate. See the references in Plate IX.

N. B. Alarming floodings only excepted, it is bad to turn the child when the head presents; and, in cases of relative disproportion between it and the pelvis, we can never propose to save the child by turning.

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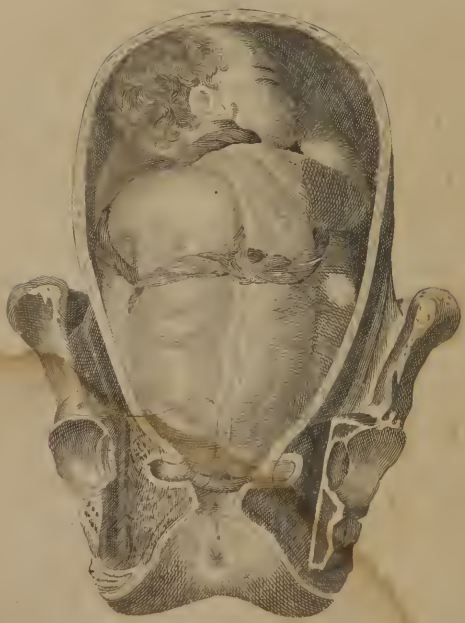

PLATE XII.

Represents, in a front view of the pelvis, the breech of the fœtus presenting, and dilating the os internum, the membranes being too soon broken. The fore-parts of the child are to the posterior part of the uterus; and the funis, with a knot upon it, surrounds the neck, arm, and body.

Sometime after this and the other Plates were engraved, Doctor Kelly showed me a subject he had opened, where the breech presented, and the child lay much in the same position with its body as in the second plate, supposing the breech in that figure turned down to the pelvis, and the head up to the fundus uteri.

I have sometimes felt, in these cases, (when labour was begun, and before the breech was advanced into the pelvis,) one hip at the sacrum, the other resting above the os pubis, and the private parts to one side; but, before they could advance lower, the nates were turned to the sides and wide part of the brim of the pelvis with the private parts to the sacrum, as in this plate; though sometimes to the pubes. As soon as the breech advances to the lower part of the basin, the hips again return to their former position, viz. one hip turned out below the os pubis, and the other at the back parts of the os externum.

In this case, the child, if not very large, or the pelvis narrow, may be often delivered alive by the labour pains; but, if long detained at the inferior part of the pelvis, the long pressure of the funis may obstruct the circulation. In most cases where the breech presents, the effect of the labour-pains ought to be waited for, till at least they have fully dilated the os internum and vagina, if the same have not been stretched before with the waters and membranes. In the mean time, whilst the breech advances, the os externum may be dilated gently during every pain, to allow room for introducing a finger or two of each hand to the outside of each groin of the fœtus, in order to assist the delivery when the nates are advanced to the lower part of the vagina. But, if the fœtus is larger than usual, or the pelvis narrow, and after a long time, and many repeated pains, the breech is not forced down into the pelvis, the patient's strength at the same time failing, the operator must, in a gradual manner, open the parts, and, having introduced a hand into the vagina, raise or push up the breech of the fœtus, and bring down the legs and thighs. If the uterus is so strongly contracted that the legs cannot be got down, the largest end of the blunt hook is to be introduced. As soon as the breech or legs are brought down, the body and head are to be delivered, as described elsewhere, only there is no necessity here to alter the position of the child's body.

The description of the parts in this plate is the same as in that of plate XI. only the dotted lines in this describe the place of the ossa pubis, and anterior parts of the ossa ischium which are removed, and may serve in this respect as an example for all the other front views, where, without disfiguring the plate, they could not be so well put in.

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* * *The letter n. after the number of the page, indicates that the article referred to is contained in a note.*

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